

# TC-K415/K515S

## SERVICE MANUAL

AEP Model  
UK Model  
TC-K415/K515S

Australian Model  
TC-K415

- TC-K415/K515S are almost same as the model TC-K411/K511S previously issued. Therefore, Refer to the TC-K411/K511S service manual for the information not contained in this service manual.

### NOTE :

- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

### Difference Parts

	TC-K411/K511S	TC-K415/K515S
Tape Transport Mechanism Type	TCM-190VB11	TCM-190VB14

### TC-K415/K515S

Page	Ref.No	Part No.	Description
28	* 4	A-2007-009-A	MAIN BOARD, COMPLETE (K511S/K515S : AEP,G)
	* 4	A-2007-226-A	MAIN BOARD, COMPLETE (K511S/K515S : UK)
	* 4	A-2007-122-A	MAIN BOARD, COMPLETE (K415)
	9	3-901-525-01	PANEL, BACK (K415 : UK)
	9	3-901-525-11	PANEL, BACK (K415 : AEP,G)
	9	3-901-525-21	PANEL, BACK (K415 : AUS)
	9	3-911-452-01	PANEL, BACK (K515S : UK)
	9	3-911-452-11	PANEL, BACK (K515S : AEP,G)
	* 13	A-2006-954-A	DOLBY (S) BOARD, COMPLETE (K515S)
	* CN1	1-537-473-11	TERMINAL (LEAD PIN)(K515S)
29	56	X-3367-875-1	LID ASSY, CASSETTE (K415)
	56	X-3368-044-1	LID ASSY, CASSETTE (K515S)
	57	X-3367-874-1	PANEL ASSY, FRONT (K415)
	57	X-3368-045-1	PANEL ASSY, FRONT (K515S)
	63	A-2007-010-A	PANEL BOARD, COMPLETE (K515S)
	63	A-2007-121-A	PANEL BOARD, COMPLETE (K415)
	68	A-2004-357-A	HOLDER (R) ASSY, CASSETTE (K415)

Page	Ref.No	Part No.	Description
29	68	X-3368-119-1	HOLDER (R) ASSY, CASSETTE (K515S)
30	101	3-911-014-01	SPRING, TORSION (K415/K515S)
	114	X-3368-368-1	FLYWHEEL (FWD) ASSY (K415/K515S)
	M2	X-3368-855-1	MOTOR ASSY, CAPSTAN (K415/K515S)
31	151	X-3368-718-1	CHASSIS (ONE) ASSY, MECHANICAL (K415/K515S)

### ACCESSORIES & PACKING MATERIALS

3-758-600-11	MANUAL, INSTRUCTION (K415/K515S : AEP) ( ENGLISH,FRENCH,SPANISH,PORTUGUESE )
3-758-600-41	MANUAL, INSTRUCTION (K415/K515S : AEP) ( GERMAN,DUTCH,SWEDISH,ITALIAN )
3-758-600-51	MANUAL, INSTRUCTION (K415/K515S : G) ( GERMAN )
3-758-600-61	MANUAL, INSTRUCTION (K415/K515S : UK, AUS) ( ENGLISH )
* 3-912-543-01	INDIVIDUAL CARTON (K415 : AUS)
* 3-912-543-11	INDIVIDUAL CARTON (K415 : AEP, UK, G)
* 3-913-835-11	INDIVIDUAL CARTON (K515S)

[ AUS : Australian model  
G : German model ]

STEREO CASSETTE DECK  
**SONY**®

Sony Corporation  
Consumer A&V Products Company  
Home A&V Products Div.

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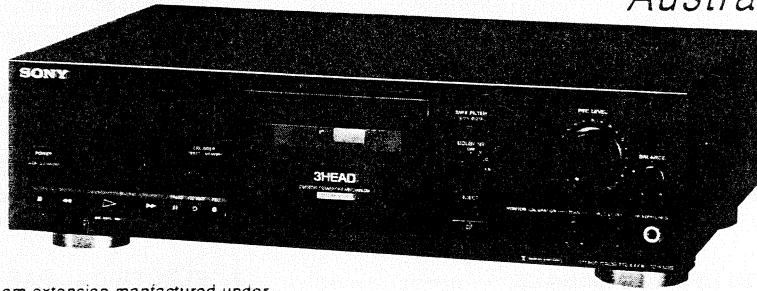
Published by Home A&V Products Div. Quality Engineering Dept.

RAG

# TC-K411/K511S

## SERVICE MANUAL

6790  
AEP Model  
UK Model  
Australian Model



• Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.


\*DOLBY\*, the double-D symbol  and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

PHOTO : TC-K511S

Model Name Using Similar Mechanism	TC-K490
Tape Transport Mechanism Type	TCM-190VB11

### SPECIFICATIONS

Recording system 4-track 2-channel stereo  
Fast winding time Approx. 90 sec. (with Sony C-60 cassette)  
Bias AC bias  
Heads Erasing head x 1 (S&F head)  
Recording head x 1 (SD head)  
Playback head x 1 (SD head)  
Motors Capstan motor x 1 (DC servo motor)  
Reel motor x 1 (DC motor)

Signal-to-noise ratio (at peak level and weighted)

Cassette (Dolby NR off)	Type IV	Type II	Type I
	60 dB	59 dB	57 dB

S/N ratio improvement (approximate values).  
With Dolby B NR on: 5 dB at 1 kHz; 10 dB at 5 kHz  
With Dolby C NR on: 15 dB at 500 Hz; 20 dB at 1 kHz  
With Dolby S NR on: 10 dB at 100 Hz; 24 dB at 1 kHz (TC-K511S only)

Harmonic distortion 0.4% (with Type I, 160 nWb/m 315 Hz, 3rd H.D.)  
1.5% (with Type IV, 250 nWb/m 315 Hz, 3rd H.D.)

Frequency response (DOLBY NR off)

Type IV cassette	30 - 19,000 Hz (±3 dB, IEC) 30 - 16,000 Hz [±3 dB (-4dB recording)]
Type II cassette	30 - 18,000 Hz (±3 dB, IEC)
Type I cassette	30 - 17,000 Hz (±3 dB, IEC)

Type IV : Sony METAL-S  
Type II : Sony UX-S  
Type I : Sony HF-S

Wow and flutter ± 0.13% W.Peak (IEC)  
0.07% W.RMS (NAB)  
± 0.18% W.Peak (DIN)

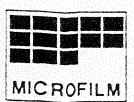
Inputs Line inputs (phono jacks)	Sensitivity	0.16 V
	Input impedance	47 k ohms

Outputs Line outputs (phono jacks)	Rated output level	0.5 V at a load impedance of 47 k ohms
	Load impedance	Over 10 k ohms
Headphones (stereo phone jack)	Output level	1 mW at a load impedance of 32 ohms

**General**  
Power requirements AEP, Germany Model : 220-230V AC, 50/60 Hz  
UK, Australian Model : 240V AC, 50/60 Hz  
Power consumption 23 W  
Dimensions Approx. 430 x 123 x 310 mm (w/h/d)  
(17 x 4 7/8 x 12 1/4 inches)  
including projecting parts and controls  
Mass Approx. 4 kg (8 lbs 14 oz)  
**Supplied accessories** Audio connecting cords (2)  
**Optional accessory** Wireless remote control unit RM-J101

Design and specifications are subject to change without notice.

**Note**  
This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

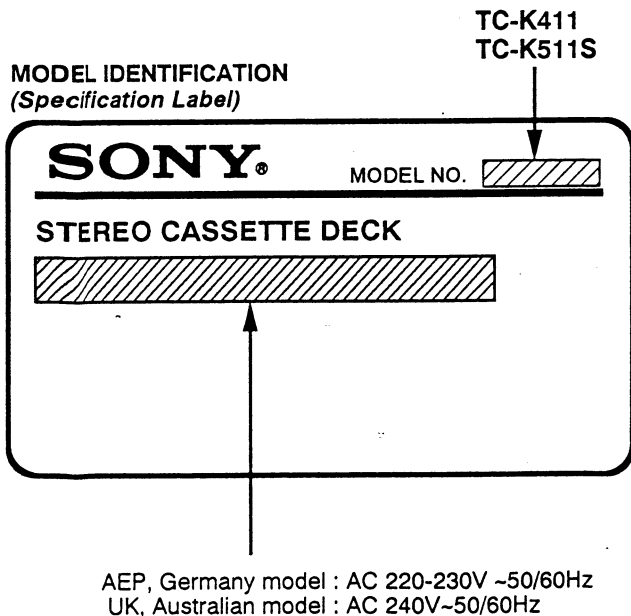


STEREO CASSETTE DECK  
**SONY**®

6790

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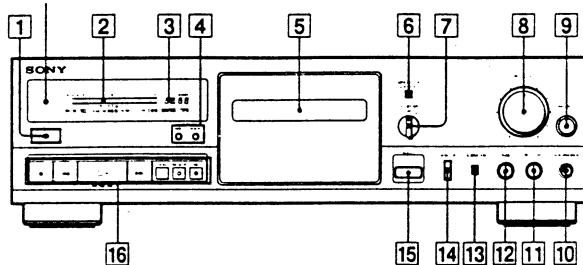


### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  $\Delta$  OR DOTTED LINE WITH MARK  $\Delta$  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

## SECTION 1 GENERAL

### 1-1. IDENTIFYING THE PARTS



This section is extracted from instruction manual.



#### Front Panel

For details, refer to the page number(s) indicated in parentheses.

- 1 POWER switch
- 2 Peak level meter
- 3 Linear counter
- 4 COUNTER buttons  
RESET button  
MEMORY button
- 5 Cassette holder
- 6 MPX FILTER button
- 7 DOLBY NR (noise reduction) switch
- 8 REC (recording) LEVEL control
- 9 BALANCE control
- 10 HEADPHONES jack (stereo phone jack)
- 11 REC (recording) LEVEL control for calibration
- 12 BIAS control
- 13 CALIBRATION button
- 14 MONITOR button
- 15 ▲ (eject) button
- 16 Tape operation buttons
  - (stop) button
  - ◀◀ (rewind) button
  - ▶▶ (play) button
  - ▶▶▶ (fast-forward) button
  - || PAUSE button
  - REC MUTE (record muting) button
  - REC (recording) button

#### \* Remote control sensor

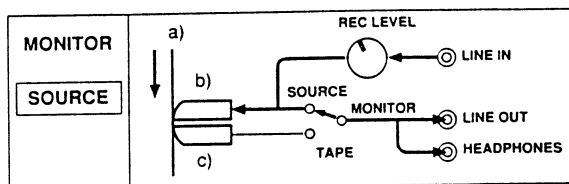
You can remotely control this cassette deck with:

- A remote commander that came with a Sony amplifier or receiver if it has the  mark and cassette deck control capability.
- An optional Sony remote commander with the  mark and cassette deck control capability.

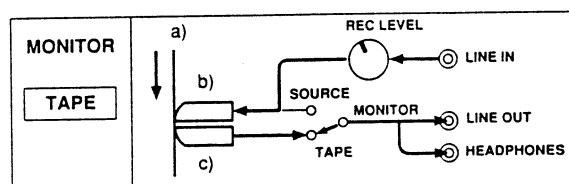


## 1-2. RECORDING

**A**



**B**



### Monitoring the Recorded Sound

As this unit has three separate heads for recording, playback and erasure, you can check the quality of a recorded sound by comparing it with the input source signal.

To listen to the input source signal, press the MONITOR button to turn on the SOURCE indicator.

(Fig. A)

To listen to the sound recorded on the tape, press the MONITOR button to turn on the TAPE indicator. (Fig. B)

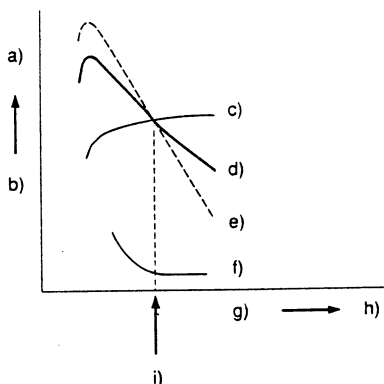
Fig. A and B show the MONITOR switch setting and their respective signal flow.

- a) Band
- b) Recording head
- c) Playback head

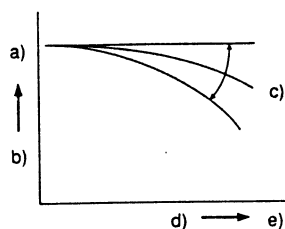
### Comparing the recorded sound with the sound source

While recording, use this monitoring function to check that there is no distortion due to excessive level settings or sound degradation due to head contamination.

**A**



**B**



### What Is the Dolby HX PRO System?

The Dolby HX PRO system provides improved linearity in high-range frequency response during recording. Tapes recorded with this system retain the same high quality even when played back on other tape decks.

As shown in Fig. A, characteristics such as output level and distortion differ widely according to the bias (high-frequency) current.

Fig. A

- a) High
- b) Distortion output
- c) 315 Hz
- d) 6.3 kHz
- e) 10 kHz
- f) 315 Hz distortion
- g) Bias current
- h) High
- i) Established bias current

In conventional systems (see Fig. B), the bias current is susceptible to variations in certain recording signals which may cause fluctuations in frequency response, distortion, or other unwanted characteristics.

Fig. B

- a) High
- b) Output
- c) Fluctuation
- d) Frequency
- e) High

With the Dolby HX PRO system, the effective bias amount added to the bias current is controlled in millisecond units to greatly reduce distortion, improving linearity in high-range response and ensuring high-intensity recording with minimal distortion and noise.

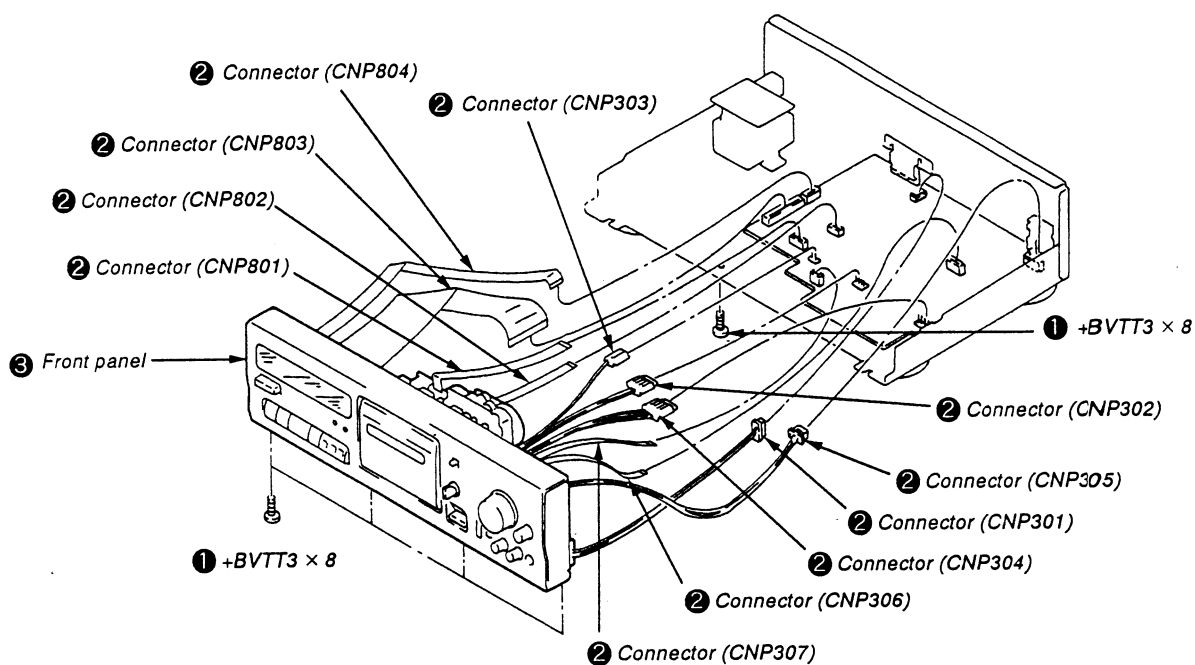
## SECTION 2 DISASSEMBLY

**Note :** Follow the disassembly procedure in the numerical order given.

### CASE

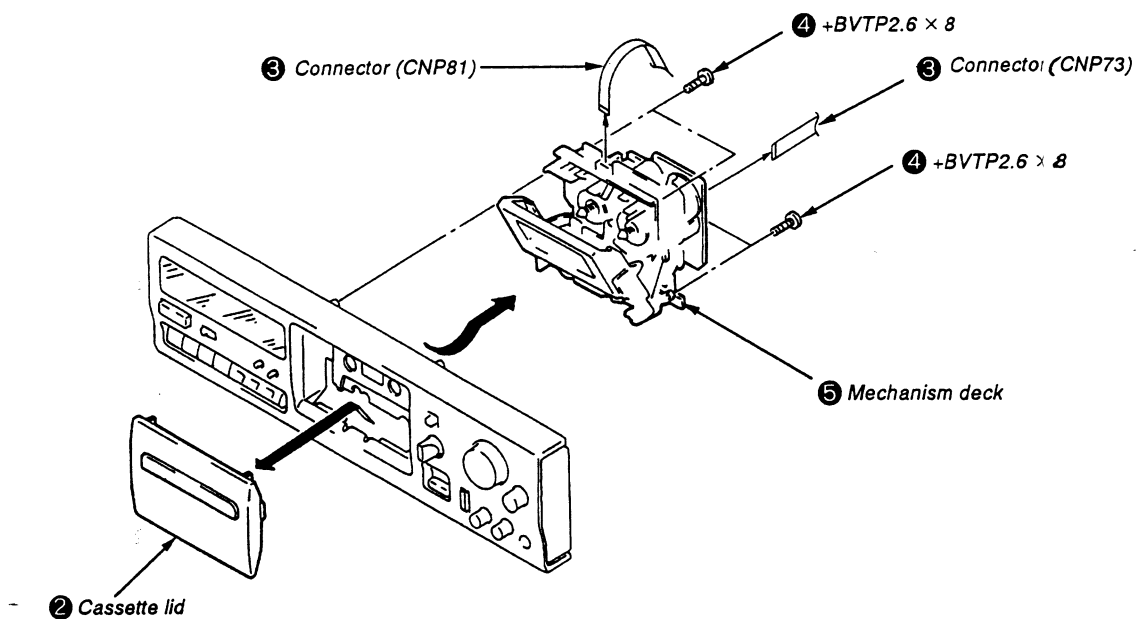
Unscrew the four case attachment screws M3 × 8 and remove the case.

### 2-1. FRONT PANEL

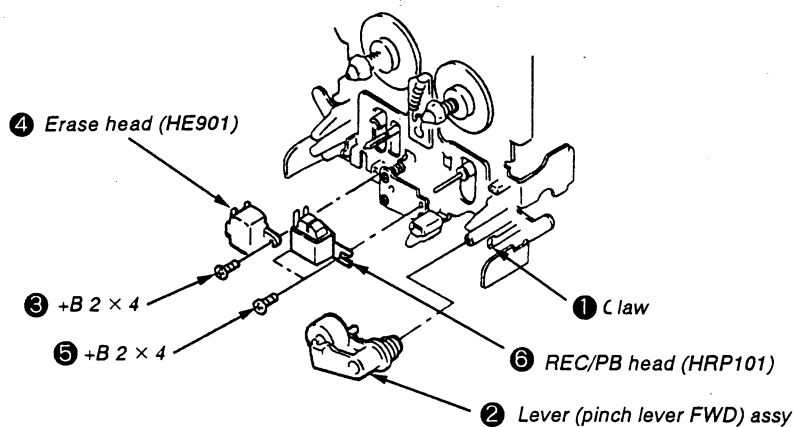


### 2-2. MECHANISM DECK

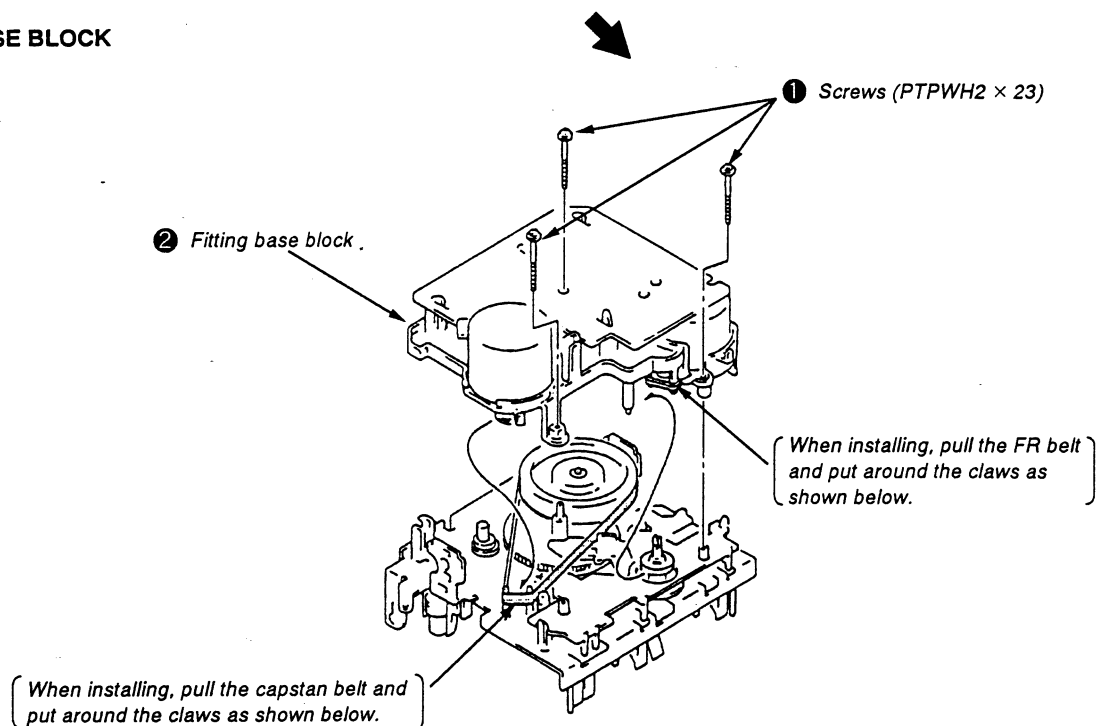
1 Press the eject button.



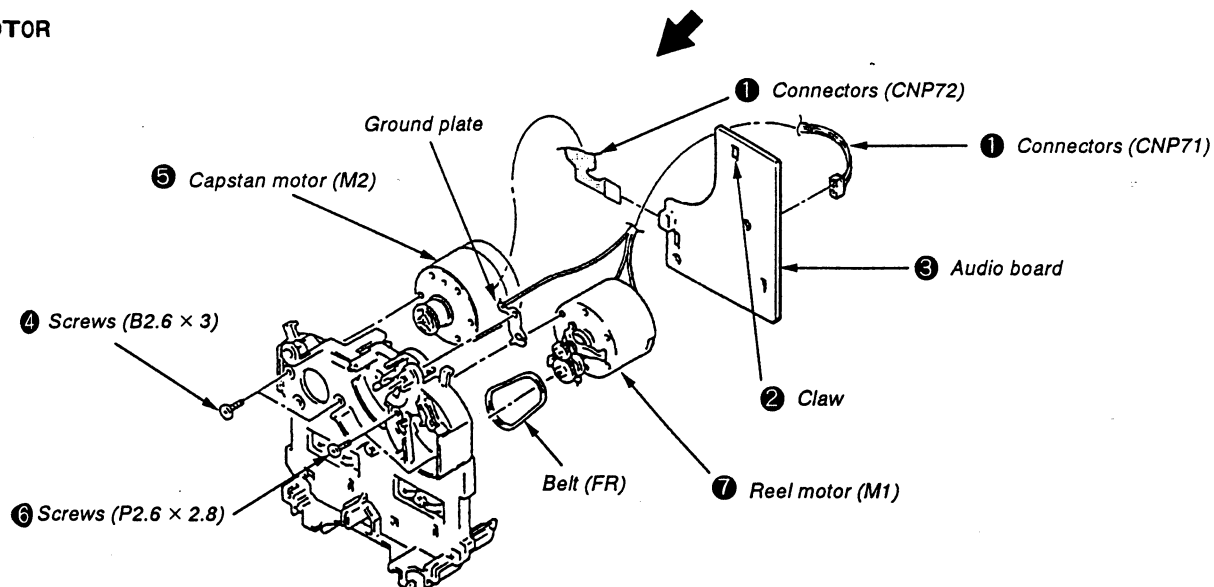
## 2-3. HEAD



## 2-4. FITTING BASE BLOCK



## 2-5. MOTOR



### SECTION 3 EXPLANATION OF IC TERMINALS

#### IC801 CXP82316-018Q

Pin No.	Pin name	I/O	Description
1	TMSW	I	Test mode selector. "H" : Normal "L" : Test mode
2	SIRCS	I	Sircs signal input terminal.
3	NC	—	Not used.
4	NC	—	Not used.
5	NC	—	Not used.
6	SOURSE	I	Sourse select terminal.
7	POWER-OUT	O	Power ON/OFF.
8	POWER-IN	I	Power OFF. OFF = 0V
9	ON/OFF CAL1	I	Calibration ON/OFF control terminal.
10	H/L CAL2	I	Calibration H/L control terminal.
11	DOLBY • ON/OFF	O	Dolby ON/OFF control terminal.
12	DOLBY • B/C	O	Dolby B/C control terminal.
13	NC	—	Not used.
14	REC MUTE	O	REC out mute Terminal
15	LINE MUTE	O	Line mute ON/OFF terminal.
16	REEL —	O	Reel motor — output terminal.
17	REEL +	O	Reel motor + output terminal.
18	C • M	O	Capstan motor. ON/OFF, ON = 0V
19	TYPE IV	I	Type IV SW input terminal.
20	TYPE II	I	Type II SW input terminal.
21	BIAS	O	Bias ON/OFF. ON=0V
22	METER-L	I	Meter level L-CH input terminal.
23	METER-R	I	Meter level R-CH input terminal.
24	HALF SW	I	Half pawl input terminal.
25	T • PULSE	I	Take up pulse input terminal.
26	S • PULSE	I	Supply pulse input terminal.
27	DOLBY	I	Dolby SW input terminal. OFF = 0V
28	KEY 1	I	Key input terminal.
29	KEY 2	I	Key input terminal.
30	RESET	I	Reset terminal. Reset : 0V
31	EXTAL	O	System clock input terminal.
32	XTAL	I	System clock output terminal.
33	Vss	—	Power supply (GND)
34	S • REC • SEL	O	S • Record select terminal.
35	PB	O	Playback selector for dolby IC Select.
36	PB-S	O	Playback selector for dolby S IC select.
37	P1	O	VFD Segment.
38	P2	O	VFD Segment.
39	P6	O	VFD Segment.
40	P7	O	VFD Segment.

Pin No.	Pin name	I/O	Description
41	P3	O	VFD Segment.
42	P5	O	VFD Segment.
43	P4	O	VFD Segment.
44	P8	O	VFD Segment.
45	P16	O	VFD Segment.
46	P9	O	VFD Segment.
47	P10	O	VFD Segment.
48	P14	O	VFD Segment.
49	P15	O	VFD Segment.
50	P11	O	VFD Segment.
51	P13	O	VFD Segment.
52	P12	O	VFD Segment.
53	P27	O	VFD Segment.
54	P18	O	VFD Segment.
55	P19	O	VFD Segment.
56	P20	O	VFD Segment.
57	P25	O	VFD Segment.
58	P21	O	VFD Segment.
59	P22	O	VFD Segment.
60	P23	O	VFD Segment.
61	P24	O	VFD Segment.
62	P28	O	VFD Segment.
63	NC	—	Not used.
64	NC	—	Not used.
65	NC	—	Not used.
66	G5-MODE	O	VFD Grid.
67	G4-SEC	O	VFD Grid.
68	G3-MIN	O	VFD Grid.
69	G2-RCH	O	VFD Grid.
70	G1-LCH	O	VFD Grid.
71	— 21V	—	— 21V.
72	V <sub>DD</sub>	—	Power supply (+5V)
73	—	—	In normal operation, connect to V <sub>DD</sub> .
74	NC	—	Not used.
75	NC	—	Not used.
76	NC	—	Not used.
77	FILTER	O	LPF Filter control output terminal.
78	NC	—	Not used.
79	STOP SW	I	Mechanism stop switch input terminal.
80	AMS-SIG	I	AMS Signal input terminal.

## SECTION 4 ADJUSTMENTS

### 4-1. MECHANICAL ADJUSTMENTS

#### PRECAUTION

1. Clean the following parts with a denatured alcohol-moistened swab:
 

record/playback/erase head	pinch roller
rubber belts	capstan
idlers	
2. Demagnetize the record/playback head with a head demagnetizer. (Head demagnetizer do not approach for the erase head.)
3. Do not use a magnetized screwdriver for the adjustment.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

#### Torque Measurement

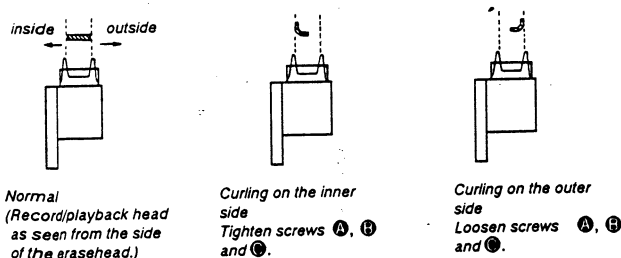
Torque	Torque	Meter reading
Forward	CQ-102C	30 to 65g•cm (0.42 to 0.90oz•inch)
Forward back tension	CQ-102C	1 to 6g•cm (0.014 to 0.08 oz•inch)
FF/REW	CQ-201B	70 to 120g•cm (0.98 to 1.66 oz•inch)

### Record/Playback Head Height/Declination Adjustment Procedures :

1. Test cassette : CQ-009C
2. Insert the mirror cassette and put the unit in record/Playback mode.

#### 1) Height Adjustment :

Check to see if the tape is curling at the tape guide of the head. If it is curling, tighten screws **A**, **B** and **C**, respectively by the same angle, moving the head so that it remains at the same angle throughout the procedure. If it curls on the bottom side of the mirror cassette (actually the inner side), tighten all the screws equally ; but loosen them if the tape begins to curl on the top side (outer side).



#### 2) Declination Adjustment :

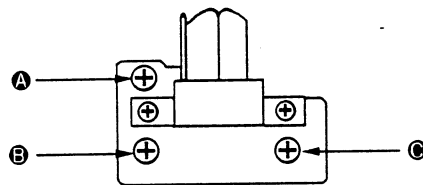
While in the record/playback position, set the back tension to 0 (wind the supply reel with something thin like a pencil in a counterclockwise direction) and make sure there is no curling or shifting (shifting up/shifting down) at the guide of the record/playback head.

Because shifting can only occur due to a difference in the width of the tape and that of the tape guides (curling will otherwise occur), it is necessary to pay close attention since it can be easily overlooked.

When there is a shift, tighten screws **B** and **C** equally and change the declination of the head. If the tape is shifting up, tighten the screws, and if it is shifting down, loosen them.

Repeat the adjustments in steps 1) to 2) and fine adjust the height and the declination.

Adjustment Location : — record/playback head —

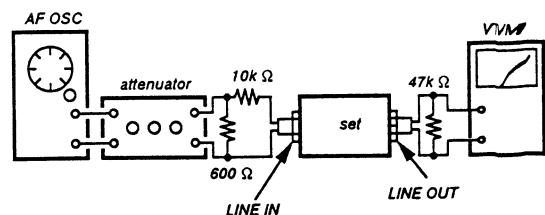


### 4-2. ELECTRICAL ADJUSTMENTS

#### PRECAUTION

1. The adjustment should be performed in the publication.  
(Be sure to make playback adjustment at first.)
2. The adjustments and measurement should be performed for both L-CH and R-CH.
  - Switch position  
DOLBY NR switch : OFF
  - Standard record position:  
Deliver the standard input signal level to input jack and set the REC LEVEL control to obtain the standard output signal level as follows.

— Record Mode —



### Standard Input Level

Input terminal	LINE IN
source impedance	10k $\Omega$
input signal level	0.5V ( - 3.8dB)

### Standard Output Level

Output terminal	LINE OUT
load impedance	47k $\Omega$
output signal level	0.5V ( - 3.8dB)

### Test Tape

Tape	Contents	Use
P-4-A100	10kHz, - 10dB	Azimuth Adjustment
P-4-L300	315Hz, 0dB	PB Level Adjustment
WS-48B	3kHz, 0dB	Tape Speed Adjustment

0dB=0.775V

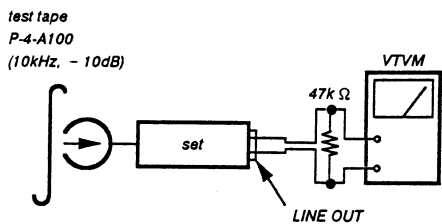
### Test Mode

1. Insert a short-circuit plug into TP801 (2P) and turn ON the power switch. (Earth pin ⑨ of IC801 and turn ON the power switch.)  
At first, all the fluorescent tubes light up, then the system returns to normal display. (However, "0000" is not displayed on the counter.)
2. To release the test mode, remove the short plug and turn off the power switch.
3. Remove the short plug after completion of adjustment.

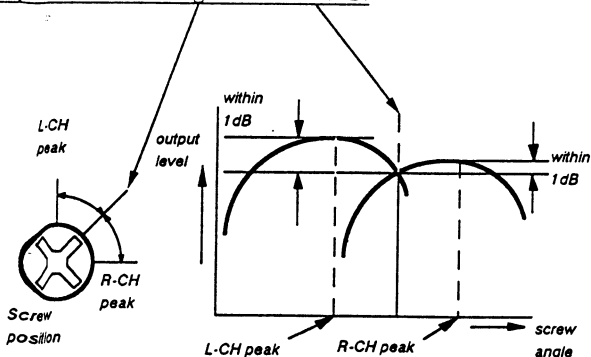
### Record/Playback Head Azimuth Adjustment

#### Procedure :

1. Forward playback Mode

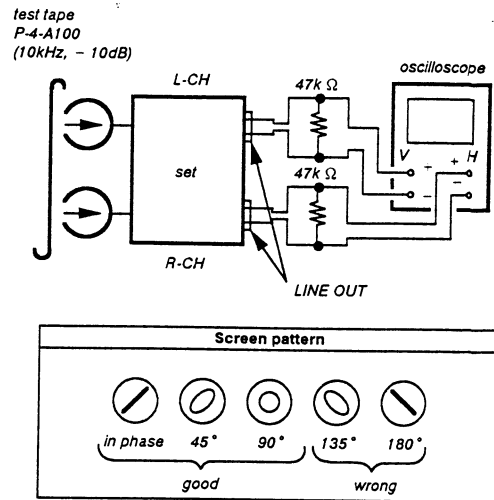


2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1dB.



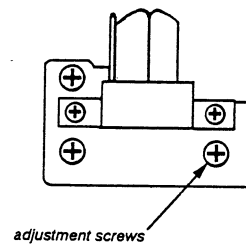
### 3. Phase check

#### Playback Mode



4. After the adjustment, lock the adjustment screws with suitable locking compound.

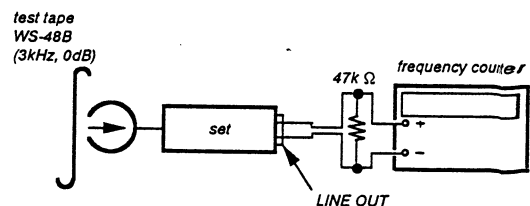
Adjustment Location : - record/playback head -



### Tape Speed Adjustment

#### Procedure :

- Forward Playback Mode -



1. Set to FWD playback mode.
2. Adjust RV71 so that the frequency counter reading becomes  $3,000 \pm 15\text{Hz}$ .

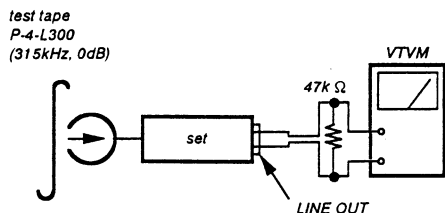
Frequency difference between the beginning and the end of the tape should be within 3%.

Adjustment Location : AUDIO board

## Playback Level Adjustment

### Procedure :

– Forward Playback Mode –



Adjust RV121 (L-CH) and RV221 (R-CH) so the VTVM reading becomes the adjustment limits below.

### Adjustment Value :

LINE OUT level :  $-7.7 \pm 0.5\text{dB}$  (0.301 to 0.338V)

Level difference between channels : within 0.5dB

Confirm the LINE OUT level does not change in playback mode while changing the mode from playback to stop several times

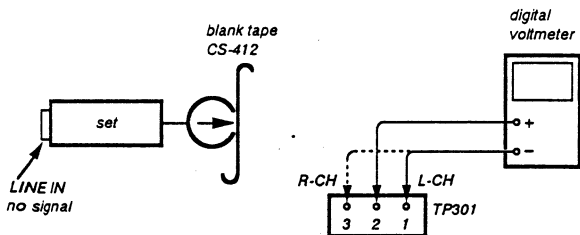
Adjustment Location : MAIN board

## Bias Consumption Current Adjustment

This adjustment should be performed when replacing the head assy or the bias oscillating transformer (T101, T201).

### Procedure :

( ) : R-CH



1. Connect the digital voltmeter to test point TP301.
2. Set RV103 (RV203) to mechanical center.
3. Set to FWD record mode.
4. Adjust T101 (T201) so that the digital voltmeter reading becomes minimum.

Adjustment Location : MAIN board

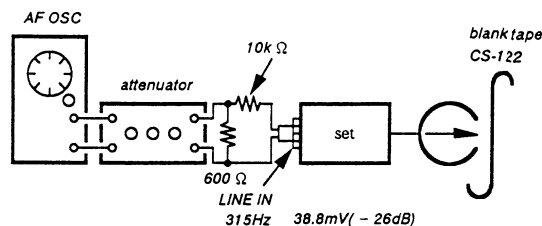
## Record Level Adjustment

### Setting :

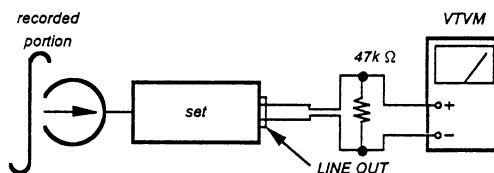
REC LEVEL control : standard record position (Refer to page 9.)

### Procedure :

1. Record Mode



2. Playback Mode



Confirm playback the tape recorded become adjustment level as follows.

If necessary, adjust RV101 (L-CH), RV201 (R-CH) and repeat the steps 1 and 2.

### Adjustment Value :

LINE OUT level :  $-26 \pm 0.5\text{dB}$  (36.7 to 41.1mV)

Adjustment Location : MAIN board

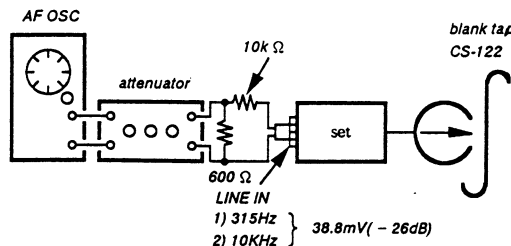
## Record Bias Adjustment

### Setting :

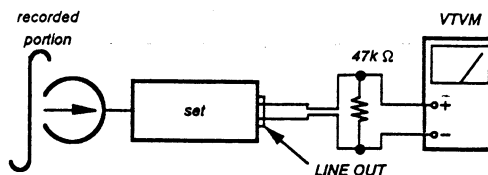
REC LEVEL control : standard record position (Refer to page 9.)

### Procedure :

1. Record Mode



2. Playback Mode





Confirm that the 10kHz playback output is  $0 \pm 0.3\text{dB}$  relative to the 315Hz output. If necessary, adjust RV103 (L-CH), RV203 (R-CH) and repeat the steps given above.

Adjustment Location : MAIN board

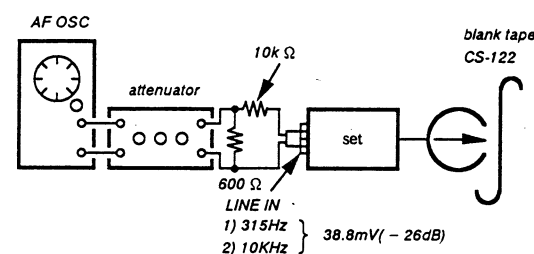
#### Record EQ (IV) Adjustment

Setting :

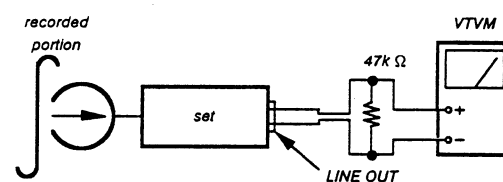
REC LEVEL control : standard record position (Refer to page 9.)

Procedure :

1. Record Mode



2. Playback Mode



1. Adjust RV102 and 202 so that they become maximum.
2. Adjust RV102 (L-CH) and 202(R-CH) so that the difference between R-CH and L-CH at 10 kHz is within 1dB.
3. Adjust RV306 so that the value of R-CH becomes the specified value.

Specified value :

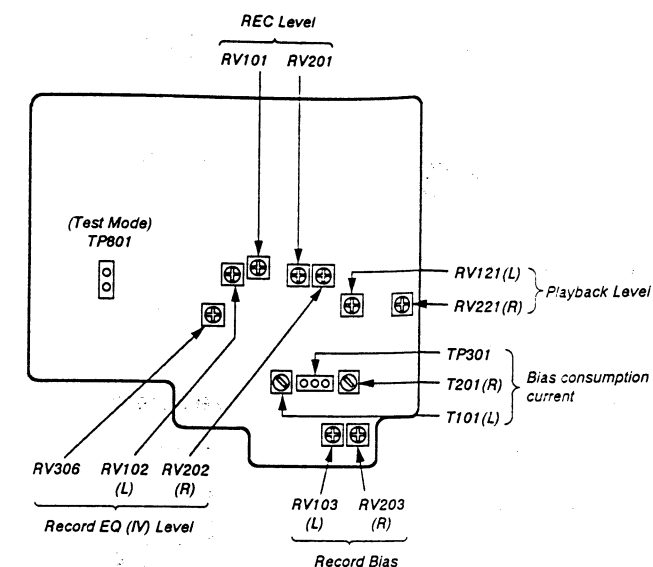
(the level at 10kHz against to 315Hz :  $0\text{dB} \pm 1\text{dB}$ )

Adjustment Location : MAIN board

— Adjustment Parts Location Diagrams —

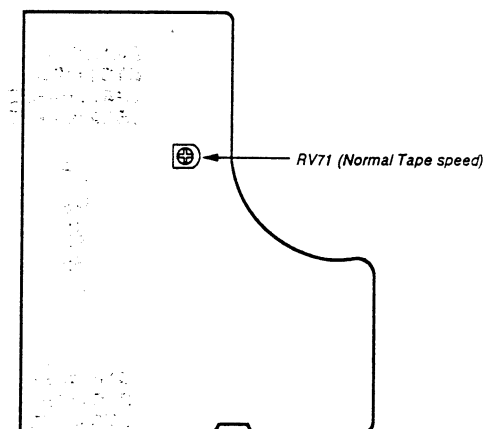
#### [MAIN BOARD]

(Component Side)



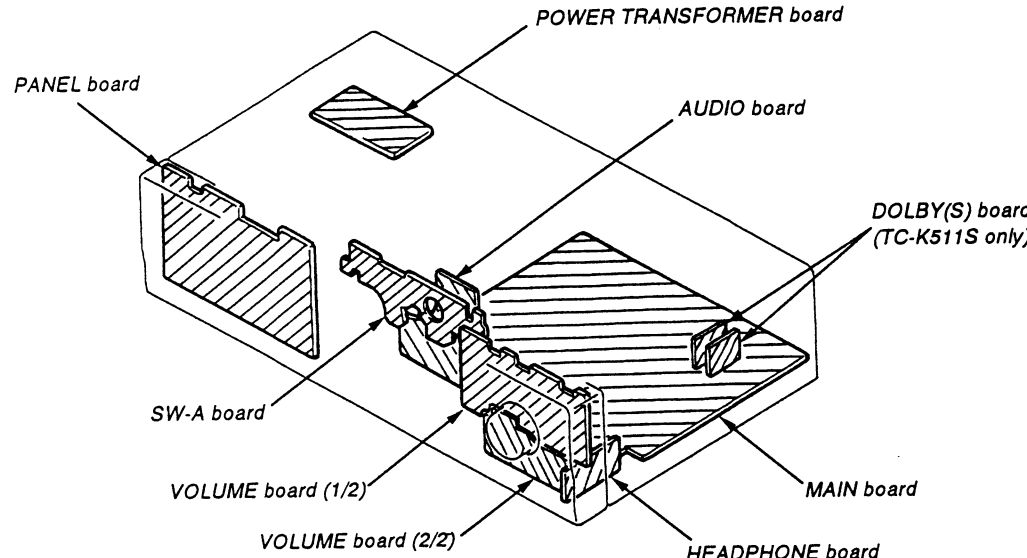
#### [AUDIO BOARD]

(Component Side)



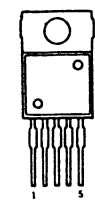
SECTION 5  
DIAGRAMS

5-1. CIRCUIT BOARDS LOCATION

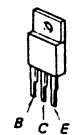


● SEMICONDUCTOR LEAD LAYOUTS

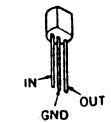
LA6500-FA



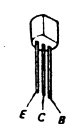
2SA473  
2SD1585-K  
2SD2012



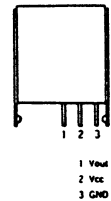
PST600E



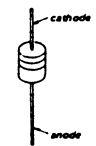
2SB1013-4  
2SB1116A-L  
2SC945-P



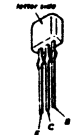
SBX1610-59



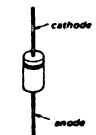
HZS6A1L  
HZS7C1L  
UZL-7L2  
UZL-7H1



BN1L3Z-K  
DTC144ES  
2SA1175-HFE  
2SC2785-HFE



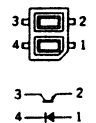
IN4148M  
10E2N



DTA114ES  
DTC114ES  
DTC143TS  
2SC2603-EF  
2SD2144S



NJL5165K-B



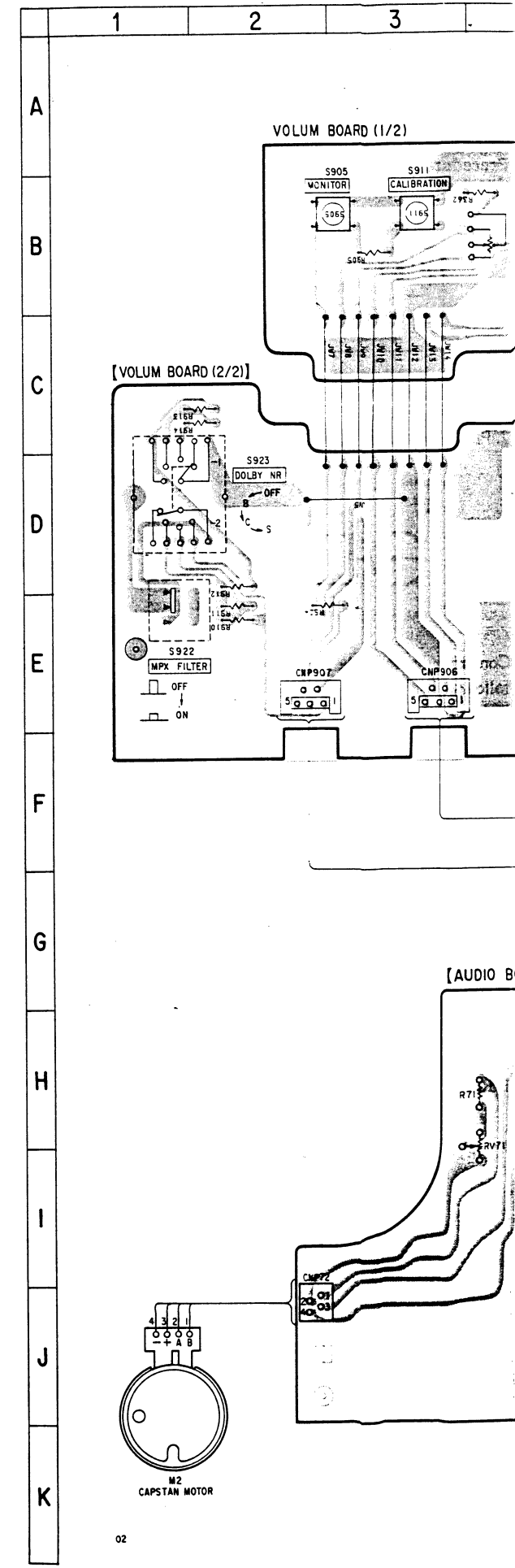
● SEMICONDUCTOR LOCATION

Ref. No.	Location	Ref. No.	Location
D101	B - 14	IC801	F - 16
D102	B - 14	IC802	F - 14
D201	C - 13	IC803	H - 16
D202	C - 13	IC901	G - 19
D301	B - 9		
D302	B - 9	Q101	G - 9
D303	B - 9	Q102	C - 13
D304	B - 9	Q103	C - 10
D305	D - 14	Q104	G - 11
D306	H - 13	Q105	F - 12
D307	G - 13	Q201	G - 8
D308	G - 13	Q202	B - 10
D310	F - 12	Q203	C - 10
D311	B - 12	Q204	G - 10
D312	B - 12	Q205	F - 11
D313	C - 13	Q301	D - 14
D314	F - 13	Q302	H - 12
D701	C - 16	Q303	H - 12
D702	C - 16	Q304	H - 12
D703	C - 16	Q305	I - 12
D704	C - 16	Q306	I - 12
D705	C - 15	Q307	J - 12
D706	B - 16	Q308	J - 12
D707	C - 16	Q309	J - 12
D708	C - 16	Q310	H - 12
D709	D - 15	Q311	H - 12
D711	B - 17	Q312	B - 11
D712	B - 17	Q313	B - 13
D713	D - 17	Q314	B - 13
D714	D - 17	Q315	D - 12
D715	D - 17	Q701	E - 15
D718	C - 17	Q702	C - 15
D801	F - 14	Q703	A - 15
D802	F - 13	Q704	A - 16
D803	F - 13	Q705	A - 17
D806	G - 15	Q706	B - 17
D814	G - 13	Q707	B - 17
D815	G - 13	Q708	C - 17
		Q709	D - 17
		Q801	G - 15
IC81	K - 20		
IC82	K - 18	Q802	F - 14
IC301	H - 9	Q803	G - 15
IC302	C - 11	Q804	G - 15
IC303	G - 10	Q805	G - 15
		Q806	G - 15
IC304	I - 10	Q807	F - 15
IC305	D - 14	Q808	E - 15
IC306	C - 14	Q809	E - 15
IC307	F - 9	Q810	G - 14
IC308	B - 11	Q813	E - 14
IC309	B - 13		
IC310	D - 9	Q814	E - 14
IC311	E - 11	Q815	E - 16
IC312	C - 9		
IC701	B - 15		

Note:

- : parts extracted from the component side.
- : parts mounted on the conductor side.
- ▨ : Pattern on the side which is seen.
- G : Germany
- AUS : Australian

5-2. PRINTED WIRING BOARDS (MAIN SECTION)



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
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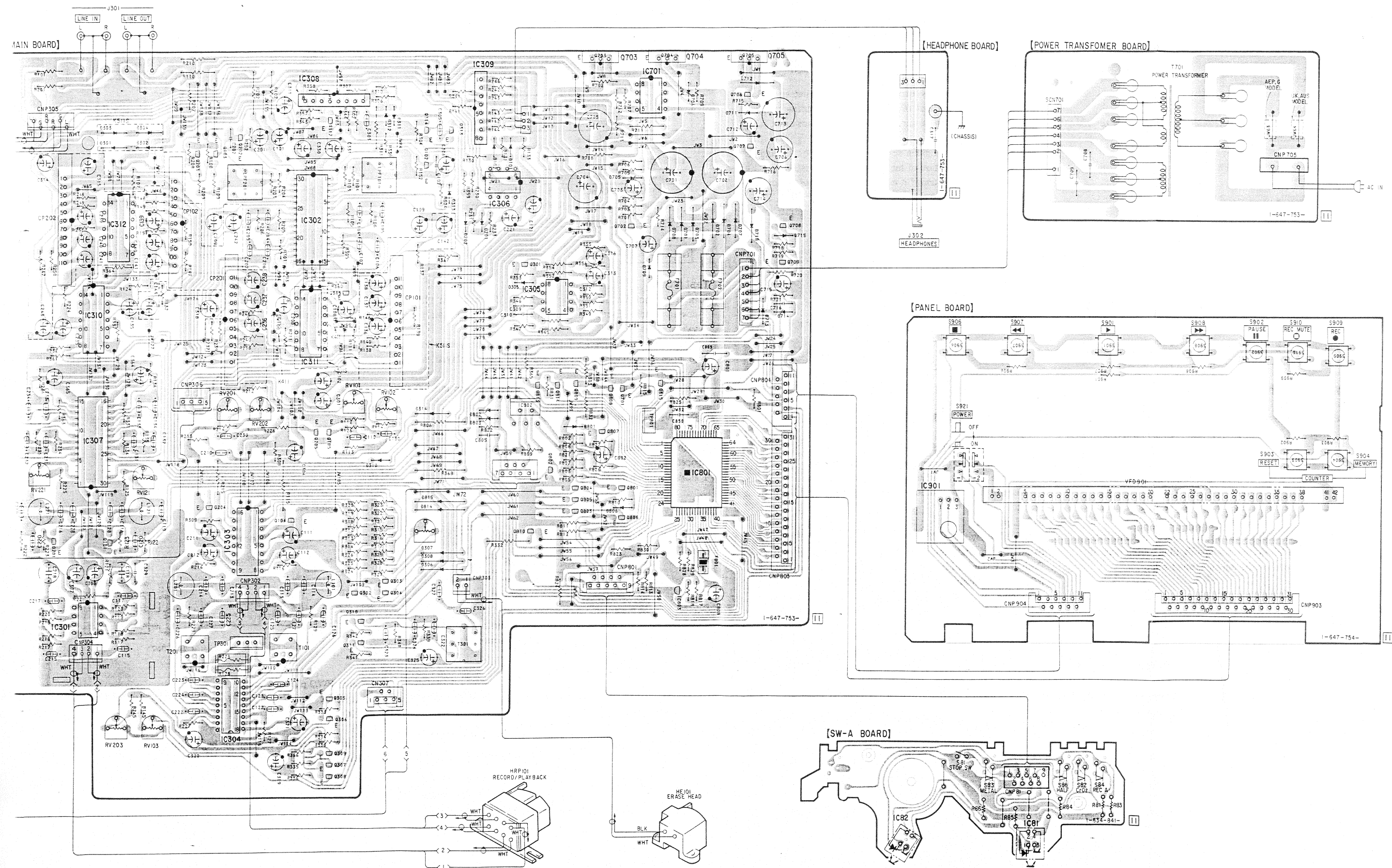
20

21

22

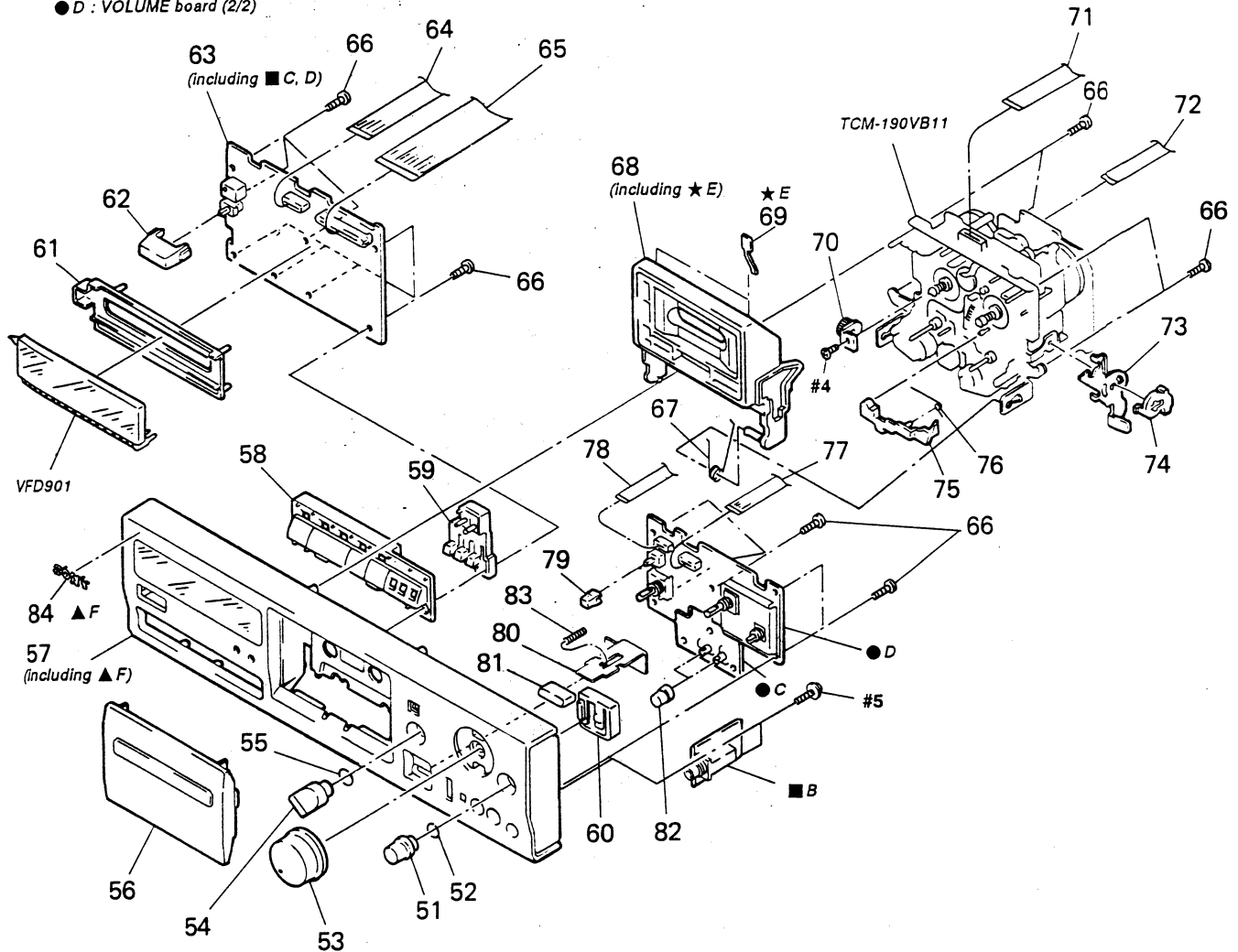
23

24



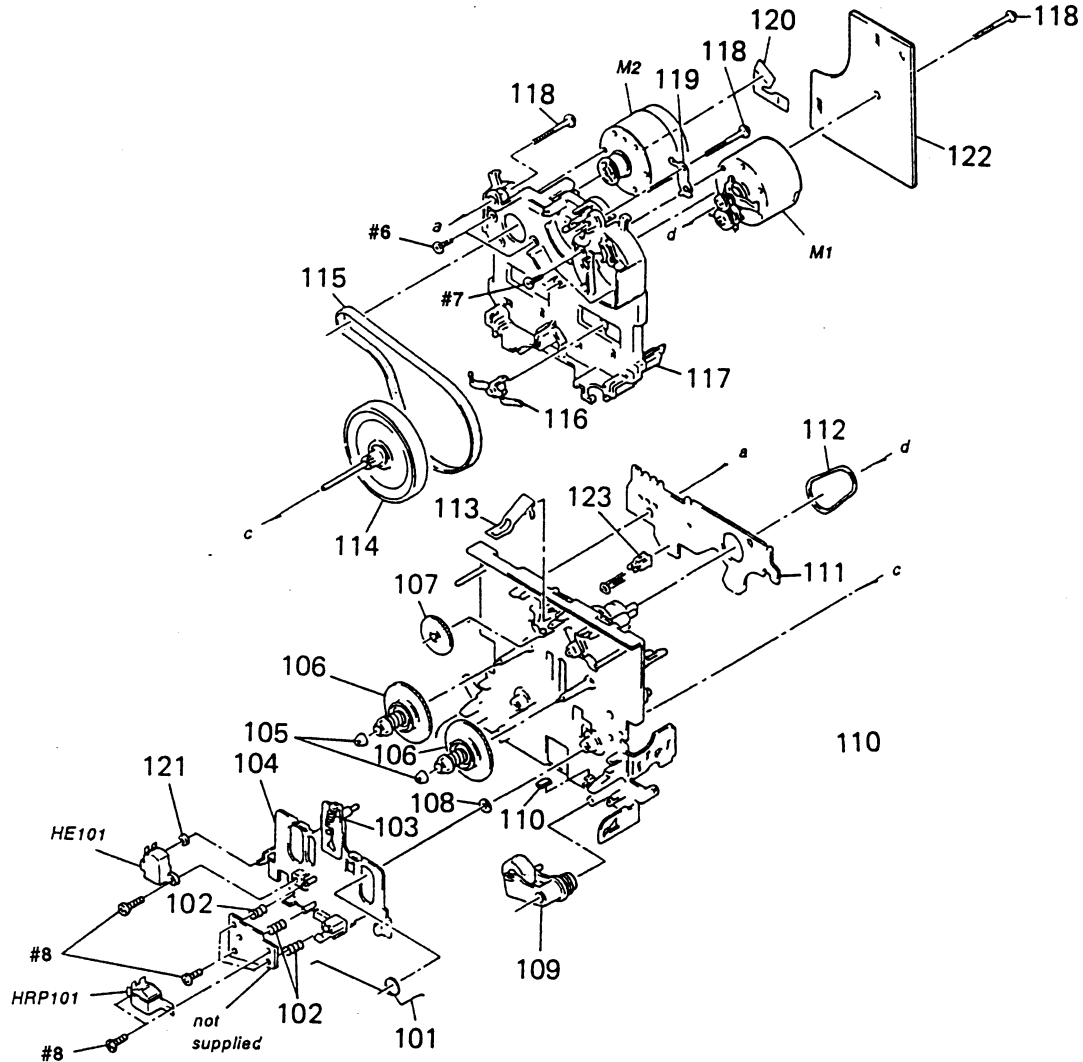
## 6-2. FRONT PANEL SECTION

- B : HEADPHONE board
- C : VOLUME board (1/2)
- D : VOLUME board (2/2)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	A-2004-274-A	KNOB (RB) ASSY		67	3-354-960-01	SPRING (LOADING R), TORSION	
52	3-354-981-01	SPRING (SUS), RING		68	X-3365-324-1	HOLDER (R) ASSY, CASSETTE	
53	3-367-438-11	KNOB (REC)		69	3-308-823-11	SPRING	
54	4-908-097-21	KNOB		70	3-354-963-01	DAMPER	
55	3-350-440-01	SPRING		71	1-575-781-11	WIRE, FLAT TYPE (9 CORE)	
56	X-3366-519-1	LID ASSY, CASSETTE (K511S)		72	1-575-780-11	WIRE, FLAT TYPE (7 CORE)	
56	X-3366-521-1	LID ASSY, CASSETTE (K411)		* 73	3-354-954-01	LEVER (LOCK LEVER R)	
57	X-3366-520-1	PANEL ASSY, FRONT (K511S)		74	3-354-957-01	JOINT (LOCK LEVER)	
57	X-3366-522-1	PANEL ASSY, FRONT (K411)		75	3-354-956-01	LEVER (EJ SAFTY LEVER R)	
58	3-386-247-01	BUTTON (FW)		76	3-354-962-01	SPRING (EJ SAFTY SPRING R)	
59	3-386-248-01	BUTTON (RE)		77	1-575-778-11	WIRE, FLAT TYPE (5 CORE)	
60	3-387-834-01	BUTTON (MBC)		78	1-751-098-11	WIRE (FLAT TYPE) (5 CORE)	
* 61	3-386-245-01	HOLDER (FL)		79	3-380-952-01	BUTTON	
62	3-354-932-01	BUTTON (POWER)		80	3-387-833-01	SLIDER (EJECT)	
* 63	A-2007-007-A	PANEL BOARD, COMPLETE (K411)		81	3-387-830-01	BUTTON (EJECT)	
* 63	A-2007-010-A	PANEL BOARD, COMPLETE (K511S)		82	3-367-431-01	KNOB (BAL)	
64	1-751-097-11	WIRE (FLAT TYPE) (11 CORE)		83	3-359-906-01	SPRING, COMPRESSION	
65	1-751-096-11	WIRE (FLAT TYPE) (31 CORE)		84	4-925-334-11	EMBLEM (5-A), SONY	
66	4-951-620-01	SCREW (2.6X8), +BVTP		VFD901	1-517-163-11	INDICATOR TUBE, FLUORESCENT	

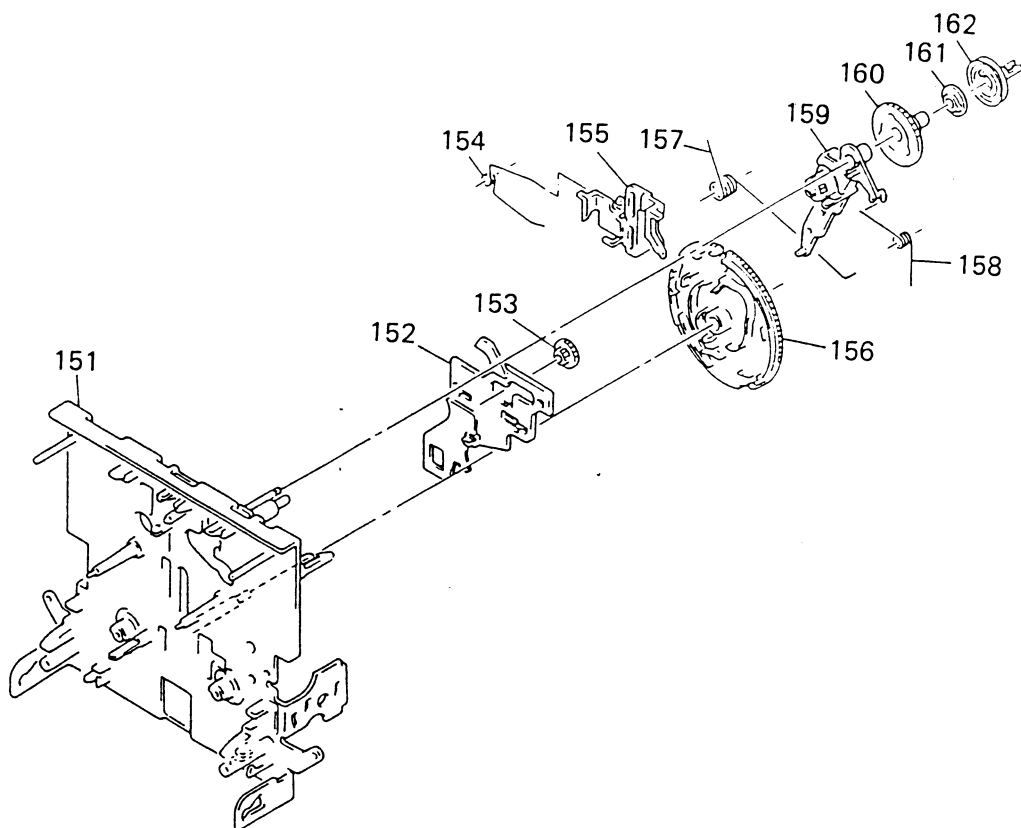
6-3. MECHANISM SECTION 1  
(TCM-190VB11)



Ref. No.	Part No.	Description	Remark
101	3-359-455-01	SPRING, TORSION	
102	3-356-659-01	SPRING (RPH), COMPRESSION	
103	3-363-868-01	SPRING (HEAD CHASSIS), TENSION	
* 104	X-3365-304-1	SLIDER (HEAD PC BOARD) ASSY	
105	3-362-308-01	CAP (REEL)	
106	X-3362-078-1	TABLE ASSY (B), REEL	
107	3-359-424-01	GEAR (REV GEAR)	
108	3-356-713-01	WASHER	
109	X-3359-408-1	LEVER (PINCH LEVER FWD) ASSY	
110	3-359-469-01	SPACER	
* 111	1-634-841-14	SW-A BOARD	
112	3-359-466-01	BELT (FR), SQUARE	
113	3-359-430-01	SPRING(CASSETTE RETAINER), LEAF	
114	X-3359-406-1	FLYWHEEL (FWD) ASSY	

Ref. No.	Part No.	Description	Remark
115	3-359-467-01	BELT (1 WAY FLAT BELT)	
116	3-575-321-00	RETAINER, THRUST, CAPSTAN	
* 117	3-359-436-01	BASE (THRUST RETAINER), FITTING	
118	3-359-414-01	SCREW (+PTPH 2X23)	
119	3-359-450-01	PLATE, GROUND	
120	1-638-983-11	PC BOARD, MOTOR FLEXIBLE	
121	3-701-437-11	WASHER	
* 122	1-634-840-21	AUDIO BOARD	
123	3-343-419-01	HOLDER (S SENSER A)	
HE101	1-543-673-11	HEAD, MAGNETIC (ERASE)	
HRP101	1-543-733-11	HEAD, MAGNETIC (RECORD/PLAYBACK)	
M1	X-3363-501-1	MOTOR ASSY, REEL	
M2	X-3365-377-1	MOTOR ASSY, CAPSTAN	

**6-4. MECHANISM SECTION 2**  
(TCM-190VB11)



Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
151	X-3365-378-1	CHASSIS (ONE)ASSY, MECHANICAL		157	3-359-456-01	SPRING(TRIGGER SPRING), TORSION	
* 152	3-359-415-01	SLIDER (TRIGGER SLIDER)		158	3-359-453-01	SPRING (FR ARM), TORSION	
153	3-359-448-01	GEAR (TRIGGER)		159	X-3359-405-1	LEVER (FR ARM) ASSY	
154	3-359-454-01	SPRING, TORSION		160	3-359-419-01	GEAR (FR GEAR)	
155	3-359-429-01	SLIDER (BRAKE PLATE)		161	3-359-421-01	CLUTCH (REEL DISK)	
156	3-359-420-01	GEAR (CAM GEAR)		162	3-359-418-01	PULLEY (FR PULLEY)	

# SECTION 7

## ELECTRICAL PARTS LIST

AUDIO

DOLBY (S)

### NOTE :

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS  
All resistors are in ohms  
METAL : Metal-film resistor  
METAL OXIDE : Metal oxide-film resistor  
F : nonflammable

- Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS  
In each case, u :  $\mu$ , for example :  
uA..... :  $\mu$  A....., uPA..... :  $\mu$  PA.....  
uPB..... :  $\mu$  PB....., uPC..... :  $\mu$  PC.....  
uPD..... :  $\mu$  PD.....
- CAPACITORS  
uF :  $\mu$  F
- COILS  
uH :  $\mu$  H

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board.

- AUS : Australian

Ref.No.	Part No.	Description	Remark			
*	1-634-840-21	AUDIO BOARD *****				
		< CAPACITOR >				
C71	1-124-903-11	ELECT 1uF	20%	50V		
C72	1-124-903-11	ELECT 1uF	20%	50V		
		< CONNECTOR >				
* CNP72	1-580-411-11	SOCKET, CONNECTOR 4P				
* CNP73	1-568-826-11	SOCKET, CONNECTOR 7P				
		< RESISTOR >				
R71	1-249-430-11	CARBON 12K	5%	1/4W		
		< VARIABLE RESISTOR >				
RV71	1-238-599-11	RES, ADJ, CARBON 4.7K (TAPE SPEED)				
*****						
*	A-2006-954-A	DOLBY (S) BOARD, COMPLATE (K511S) *****				
		< CAPACITOR >				
C1	1-164-222-11	CERAMIC CHIP 0.22uF		25V (K511S)		
C2	1-135-177-21	TANTALUM CHIP 1uF	20%	20V (K511S)		
C3	1-104-558-91	FILM CHIP 0.039uF	5%	16V (K511S)		
C4	1-163-007-11	CERAMIC CHIP 680PF	10%	50V (K511S)		
C5	1-163-009-11	CERAMIC CHIP 0.001uF	10%	50V (K511S)		
C6	1-164-717-11	CERAMIC CHIP 0.0082uF	5%	50V (K511S)		
C7	1-164-222-11	CERAMIC CHIP 0.22uF		25V (K511S)		

Ref.No.	Part No.	Description	Remark			
C8	1-104-562-11	FILM CHIP 0.082uF	5%	16V (K511S)		
C9	1-104-553-11	FILM CHIP 0.015uF	5%	16V (K511S)		
C10	1-165-319-11	CERAMIC CHIP 0.1uF		50V (K511S)		
C11	1-135-145-11	TANTALUM CHIP 0.47uF	10%	35V (K511S)		
C12	1-164-222-11	CERAMIC CHIP 0.22uF		25V (K511S)		
C13	1-165-319-11	CERAMIC CHIP 0.1uF		50V (K511S)		
C14	1-162-568-11	CERAMIC CHIP 0.33uF	10%	16V (K511S)		
C15	1-104-562-11	FILM CHIP 0.082uF	5%	16V (K511S)		
C16	1-135-145-11	TANTALUM CHIP 0.47uF	10%	35V (K511S)		
C17	1-165-319-11	CERAMIC CHIP 0.1uF		50V (K511S)		
C18	1-164-222-11	CERAMIC CHIP 0.22uF		25V (K511S)		
C19	1-163-035-00	CERAMIC CHIP 0.047uF		50V (K511S)		
C20	1-104-553-11	FILM CHIP 0.015uF	5%	16V (K511S)		
C21	1-164-717-11	CERAMIC CHIP 0.0082uF	5%	50V (K511S)		
C22	1-163-009-11	CERAMIC CHIP 0.001uF	10%	50V (K511S)		
C23	1-164-161-11	CERAMIC CHIP 0.0022uF	10%	100V (K511S)		
C24	1-163-005-11	CERAMIC CHIP 470PF	10%	50V (K511S)		
C25	1-163-012-00	CERAMIC CHIP 0.0018uF	10%	50V (K511S)		



# DOLBY (S)

Ref. No.	Part No.	Description	Remark		
C26	1-104-558-91	FILM CHIP	0.039uF	5%	16V (K511S)
C27	1-163-012-00	CERAMIC CHIP	0.0018uF	10%	50V (K511S)
C28	1-163-012-00	CERAMIC CHIP	0.0018uF	10%	50V (K511S)
C29	1-104-563-11	FILM CHIP	0.1uF	5%	16V (K511S)
C30	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V (K511S)
C31	1-104-555-11	FILM CHIP	0.022uF	5%	16V (K511S)
C32	1-104-563-11	FILM CHIP	0.1uF	5%	16V (K511S)
C33	1-163-024-00	CERAMIC CHIP	0.018uF	10%	50V (K511S)
C34	1-104-563-11	FILM CHIP	0.1uF	5%	16V (K511S)
C35	1-163-012-00	CERAMIC CHIP	0.0018uF	10%	50V (K511S)
C36	1-165-319-11	CERAMIC CHIP	0.1uF		50V (K511S)
C37	1-164-222-11	CERAMIC CHIP	0.22uF		25V (K511S)
C38	1-163-024-00	CERAMIC CHIP	0.018uF	10%	50V (K511S)
C39	1-104-555-11	FILM CHIP	0.022uF	5%	16V (K511S)
C40	1-104-563-11	FILM CHIP	0.1uF	5%	16V (K511S)
< CONNECTOR >					
* CN1	1-537-473-11	TERMINAL (LEAD PIN)			
< IC >					
IC1	8-752-056-51	IC	CXA1417Q-T6 (K511S)		
IC2	8-759-711-85	IC	NJM4580E-D (K511S)		
< RESISTOR >					
R1	1-216-013-00	METAL CHIP	33	5%	1/10W (K511S)
R2	1-216-675-11	METAL CHIP	10K	0.5%	1/10W (K511S)
R3	1-216-681-11	METAL CHIP	18K	0.5%	1/10W (K511S)
R4	1-218-774-11	METAL CHIP	820K	0.50%	1/10W (K511S)
R5	1-216-668-11	METAL CHIP	5.1K	0.5%	1/10W (K511S)

Ref. No.	Part No.	Description	Remark		
R6	1-216-656-11	METAL CHIP	1.6K	0.5%	1/10W (K511S)
R7	1-216-657-11	METAL CHIP	1.8K	0.5%	1/10W (K511S)
R8	1-216-065-00	METAL CHIP	4.7K	5%	1/10W (K511S)
R9	1-216-058-00	METAL GLAZE	2.4K	5%	1/10W (K511S)
R10	1-216-654-11	METAL CHIP	1.3K	0.5%	1/10W (K511S)
R11	1-216-013-00	METAL CHIP	33	5%	1/10W (K511S)
R12	1-216-017-00	METAL CHIP	47	5%	1/10W (K511S)
R13	1-216-051-00	METAL CHIP	1.2K	5%	1/10W (K511S)
R14	1-216-065-00	METAL CHIP	4.7K	5%	1/10W (K511S)
R15	1-216-058-00	METAL GLAZE	2.4K	5%	1/10W (K511S)
R16	1-216-013-00	METAL CHIP	33	5%	1/10W (K511S)
R17	1-216-017-00	METAL CHIP	47	5%	1/10W (K511S)
R18	1-216-055-00	METAL CHIP	1.8K	5%	1/10W (K511S)
R19	1-216-656-11	METAL CHIP	1.6K	0.5%	1/10W (K511S)
R20	1-216-668-11	METAL CHIP	5.1K	0.5%	1/10W (K511S)
R21	1-218-774-11	METAL CHIP	820K	0.50%	1/10W (K511S)
R22	1-216-655-11	METAL CHIP	1.5K	0.5%	1/10W (K511S)
R23	1-216-678-11	METAL CHIP	13K	0.5%	1/10W (K511S)
R24	1-216-673-11	METAL CHIP	8.2K	0.5%	1/10W (K511S)
R25	1-216-675-11	METAL CHIP	10K	0.5%	1/10W (K511S)
R26	1-216-676-11	METAL CHIP	11K	0.5%	1/10W (K511S)
R27	1-216-668-11	METAL CHIP	5.1K	0.5%	1/10W (K511S)
R28	1-216-697-11	METAL CHIP	82K	0.5%	1/10W (K511S)
R29	1-216-668-11	METAL CHIP	5.1K	0.5%	1/10W (K511S)

# DOLBY (S)

# MAIN

Ref.No.	Part No.	Description	Remark
R30	1-216-660-11	METAL CHIP 2.4K	0.5% 1/10W (K511S)
R31	1-216-680-11	METAL CHIP 16K	0.5% 1/10W (K511S)
R32	1-216-685-11	METAL CHIP 27K	0.5% 1/10W (K511S)
R33	1-216-080-00	METAL CHIP 20K	5% 1/10W (K511S)
R34	1-216-684-11	METAL CHIP 24K	0.5% 1/10W (K511S)
R35	1-216-084-00	METAL CHIP 30K	5% 1/10W (K511S)
R36	1-216-084-00	METAL CHIP 30K	5% 1/10W (K511S)
R37	1-216-074-00	METAL CHIP 11K	5% 1/10W (K511S)
R38	1-216-086-00	METAL GLAZE 36K	5% 1/10W (K511S)
R39	1-216-066-00	METAL CHIP 5.1K	5% 1/10W (K511S)
R40	1-216-084-00	METAL CHIP 30K	5% 1/10W (K511S)
R41	1-216-078-00	METAL GLAZE 16K	5% 1/10W (K511S)
R42	1-216-071-00	METAL CHIP 8.2K	5% 1/10W (K511S)
R43	1-216-081-00	METAL CHIP 22K	5% 1/10W (K511S)
R44	1-216-689-11	METAL CHIP 39K	0.5% 1/10W (K511S)
R45	1-216-689-11	METAL CHIP 39K	0.5% 1/10W (K511S)
R53	1-216-058-00	METAL GLAZE 2.4K	5% 1/10W (K511S)
R54	1-216-675-11	METAL CHIP 10K	0.5% 1/10W (K511S)
R55	1-216-666-11	METAL CHIP 4.3K	0.5% 1/10W (K511S)
*****			
*	A-2007-008-A	MAIN BOARD, COMPLETE (K411)	*****
*	A-2007-009-A	MAIN BOARD, COMPLETE (K511S)	*****
*	1-533-213-31	HOLDER, FUSE	
*	1-690-880-31	LEAD (WITH CONNECTOR) (K511S)	
< CAPACITOR >			
C101	1-124-927-11	ELECT 4.7uF	20% 100V
C102	1-161-375-00	CERAMIC 0.0022uF	20% 50V

Ref.No.	Part No.	Description	Remark
C104	1-130-475-00	MYLAR 0.0022uF	5% 50V
C105	1-130-475-00	MYLAR 0.0022uF	5% 50V
C106	1-136-174-00	FILM 0.56uF	5% 50V
C107	1-136-171-00	FILM 0.33uF	5% 50V
C108	1-124-907-11	ELECT 10uF	20% 50V
C109	1-124-907-11	ELECT 10uF	20% 50V
C110	1-136-175-00	FILM 0.68uF	5% 50V
C111	1-124-907-11	ELECT 10uF	20% 50V
C112	1-124-907-11	ELECT 10uF	20% 50V
C113	1-110-338-51	MYLAR 180PF	5% 50V
C114	1-136-935-11	FILM 22PF	5% 630V
C115	1-110-340-11	MYLAR 270PF	5% 50V
C116	1-130-474-00	MYLAR 0.0018uF	5% 50V
C117	1-136-157-00	FILM 0.022uF	5% 50V
C118	1-126-320-11	ELECT, NONPOLAR 10uF	20% 16V
C119	1-102-518-11	CERAMIC 33PF	5% 50V
C120	1-130-488-00	MYLAR 0.027uF	5% 50V
C121	1-124-925-11	ELECT 2.2uF	20% 100V
C122	1-136-153-00	FILM 0.01uF	5% 50V
C123	1-136-157-00	FILM 0.022uF	5% 50V
C124	1-136-161-00	FILM 0.047uF	5% 50V
C125	1-136-803-11	FILM 560PF	5% 630V
C126	1-130-468-00	MYLAR 560PF	5% 50V
C127	1-136-433-11	FILM 100PF	5% 630V
C128	1-130-474-00	MYLAR 0.0018uF	5% 50V
C130	1-130-475-00	MYLAR 0.0022uF	5% 50V
C131	1-130-475-00	MYLAR 0.0022uF	5% 50V
C132	1-130-475-00	MYLAR 0.0022uF	5% 50V
C133	1-136-174-00	FILM 0.56uF	5% 50V
C134	1-136-171-00	FILM 0.33uF	5% 50V
C135	1-124-907-11	ELECT 10uF	20% 50V
C136	1-124-907-11	ELECT 10uF	20% 50V (K511S)
C137	1-124-916-11	ELECT 22uF	20% 63V (K511S)
C138	1-124-907-11	ELECT 10uF	20% 50V (K511S)
C139	1-124-907-11	ELECT 10uF	20% 50V (K511S)
C140	1-124-916-11	ELECT 22uF	20% 63V (K511S)
C141	1-124-907-11	ELECT 10uF	20% 50V (K511S)
C142	1-124-907-11	ELECT 10uF	20% 50V
C143	1-124-907-11	ELECT 10uF	20% 50V
C201	1-124-927-11	ELECT 4.7uF	20% 100V
C202	1-161-375-00	CERAMIC 0.0022uF	20% 50V
C204	1-130-475-00	MYLAR 0.0022uF	5% 50V
C205	1-130-475-00	MYLAR 0.0022uF	5% 50V

# MAIN

Ref.No.	Part No.	Description	Remark		
C206	1-136-174-00	FILM	0.56uF	5%	50V
C207	1-136-171-00	FILM	0.33uF	5%	50V
C208	1-124-907-11	ELECT	10uF	20%	50V
C209	1-124-907-11	ELECT	10uF	20%	50V
C210	1-136-175-00	FILM	0.68uF	5%	50V
C211	1-124-907-11	ELECT	10uF	20%	50V
C212	1-124-907-11	ELECT	10uF	20%	50V
C213	1-110-338-51	MYLAR	180PF	5%	50V
C214	1-136-935-11	FILM	22PF	5%	630V
C215	1-110-340-11	MYLAR	270PF	5%	50V
C216	1-130-474-00	MYLAR	0.0018uF	5%	50V
C217	1-136-157-00	FILM	0.022uF	5%	50V
C218	1-126-320-11	ELECT, NONPOLAR	10uF	20%	16V
C219	1-102-518-11	CERAMIC	33PF	5%	50V
C220	1-130-488-00	MYLAR	0.027uF	5%	50V
C221	1-124-925-11	ELECT	2.2uF	20%	100V
C222	1-136-153-00	FILM	0.01uF	5%	50V
C223	1-136-157-00	FILM	0.022uF	5%	50V
C224	1-136-161-00	FILM	0.047uF	5%	50V
C225	1-136-803-11	FILM	560PF	5%	630V
C226	1-130-468-00	MYLAR	560PF	5%	50V
C227	1-136-433-11	FILM	100PF	5%	630V
C228	1-130-474-00	MYLAR	0.0018uF	5%	50V
C230	1-130-475-00	MYLAR	0.0022uF	5%	50V
C231	1-130-475-00	MYLAR	0.0022uF	5%	50V
C232	1-130-475-00	MYLAR	0.0022uF	5%	50V
C233	1-136-174-00	FILM	0.56uF	5%	50V
C234	1-136-171-00	FILM	0.33uF	5%	50V
C235	1-124-907-11	ELECT	10uF	20%	50V
C236	1-124-907-11	ELECT	10uF	20%	50V (K511S)
C237	1-124-916-11	ELECT	22uF	20%	63V (K511S)
C238	1-124-907-11	ELECT	10uF	20%	50V (K511S)
C239	1-124-907-11	ELECT	10uF	20%	50V (K511S)
C240	1-124-916-11	ELECT	22uF	20%	63V (K511S)
C241	1-124-907-11	ELECT	10uF	20%	50V (K511S)
C242	1-124-907-11	ELECT	10uF	20%	50V
C243	1-124-907-11	ELECT	10uF	20%	50V
C301	1-124-907-11	ELECT	10uF	20%	50V
C302	1-124-907-11	ELECT	10uF	20%	50V
C303	1-130-478-00	MYLAR	0.0039uF	5%	50V
C304	1-124-907-11	ELECT	10uF	20%	50V
C305	1-136-164-00	FILM	0.082uF	5%	50V
C306	1-124-903-11	ELECT	1uF	20%	50V

Ref.No.	Part No.	Description	Remark		
C307	1-124-443-00	ELECT	100uF	20%	10V
C308	1-124-443-00	ELECT	100uF	20%	10V
C309	1-162-217-31	CERAMIC	56PF	5%	50V
C310	1-161-494-00	CERAMIC	0.022uF		25V
C311	1-124-925-11	ELECT	2.2uF	20%	100V
C312	1-162-217-31	CERAMIC	56PF	5%	50V
C313	1-124-925-11	ELECT	2.2uF	20%	100V
C314	1-124-907-11	ELECT	10uF	20%	50V (K511S)
C315	1-124-907-11	ELECT	10uF	20%	50V (K511S)
C316	1-124-902-00	ELECT	0.47uF	20%	50V
C317	1-162-306-11	CERAMIC	0.01uF	20%	16V
C318	1-124-907-11	ELECT	10uF	20%	50V
C319	1-124-907-11	ELECT	10uF	20%	50V
C320	1-124-477-11	ELECT	47uF	20%	25V
C321	1-124-477-11	ELECT	47uF	20%	25V
C322	1-136-253-11	FILM	0.0018uF	5%	100V
C323	1-136-253-11	FILM	0.0018uF	5%	100V
C324	1-136-233-11	FILM	0.0047uF	5%	100V
C325	1-124-916-11	ELECT	22uF	20%	63V
C326	1-136-558-11	FILM	0.0039uF	5%	630V
C327	1-107-045-00	MICA	3.9PF		500V
C329	1-161-494-00	CERAMIC	0.022uF		25V
C330	1-124-907-11	ELECT	10uF	20%	50V
C331	1-124-907-11	ELECT	10uF	20%	50V
C364	1-124-907-11	ELECT	10uF	20%	50V
C365	1-124-907-11	ELECT	10uF	20%	50V
C701	1-126-936-11	ELECT	3300uF	20%	16V
C702	1-126-936-11	ELECT	3300uF	20%	16V
C703	1-126-176-11	ELECT	220uF	20%	10V
C704	1-126-926-11	ELECT	1000uF	20%	10V
C705	1-126-926-11	ELECT	1000uF	20%	10V
C706	1-124-120-11	ELECT	220uF	20%	25V
C707	1-124-927-11	ELECT	4.7uF	20%	100V
C708	1-162-294-31	CERAMIC	0.001uF	10%	50V
C709	1-162-294-31	CERAMIC	0.001uF	10%	50V
C712	1-124-903-11	ELECT	1uF	20%	50V
C713	1-126-926-11	ELECT	1000uF	20%	10V
C714	1-124-122-11	ELECT	100uF	20%	50V
C715	1-124-910-11	ELECT	47uF	20%	50V
C716	1-164-159-11	CERAMIC	0.1uF		50V
C801	1-124-443-00	ELECT	100uF	20%	10V
C802	1-126-176-11	ELECT	220uF	20%	10V
C805	1-164-159-11	CERAMIC	0.1uF		50V
C808	1-123-382-00	ELECT	3.3uF	20%	100V
C809	1-164-159-11	CERAMIC	0.1uF		50V
C850	1-164-159-11	CERAMIC	0.1uF		50V (K511S)

# MAIN

Ref. No.	Part No.	Description	Remark
C850	1-161-357-00	CERAMIC	0.0022uF 20% 50V (K411)

## < CONNECTOR >

* CNP301	1-564-337-00	PIN, CONNECTOR 3P	
* CNP302	1-560-062-00	PIN, CONNECTOR 4P	
* CNP303	1-560-060-00	PIN, CONNECTOR 2P	
* CNP304	1-560-062-00	PIN, CONNECTOR 4P	
* CNP305	1-691-462-11	PIN, CONNECTOR (PC BOARD) 6P	

* CNP306	1-568-824-11	SOCKET, CONNECTOR 5P	
* CNP307	1-568-824-11	SOCKET, CONNECTOR 5P	
* CNP701	1-564-510-11	PLUG, CONNECTOR 7P	
* CNP705	1-580-230-31	PIN, CONNECTOR (PC BOARD) 2P	
* CNP801	1-568-828-11	SOCKET, CONNECTOR 9P	

* CNP802	1-568-826-11	SOCKET, CONNECTOR 7P	
* CNP803	1-568-845-11	SOCKET, CONNECTOR 31P	
* CNP804	1-568-830-11	SOCKET, CONNECTOR 11P	

## < DIODE >

D101	8-719-987-63	DIODE	1N4148M
D102	8-719-987-63	DIODE	1N4148M
D201	8-719-987-63	DIODE	1N4148M
D202	8-719-987-63	DIODE	1N4148M
D301	8-719-987-63	DIODE	1N4148M (K511S)

D302	8-719-987-63	DIODE	1N4148M (K511S)
D303	8-719-987-63	DIODE	1N4148M (K511S)
D304	8-719-987-63	DIODE	1N4148M (K511S)
D305	8-719-987-63	DIODE	1N4148M
D306	8-719-987-63	DIODE	1N4148M

D307	8-719-987-63	DIODE	1N4148M
D308	8-719-987-63	DIODE	1N4148M
D310	8-719-987-63	DIODE	1N4148M
D311	8-719-987-63	DIODE	1N4148M
D312	8-719-987-63	DIODE	1N4148M

D313	8-719-987-63	DIODE	1N4148M
D314	8-719-987-63	DIODE	1N4148M
D701	8-719-200-77	DIODE	10E2N
D702	8-719-200-77	DIODE	10E2N
D703	8-719-200-77	DIODE	10E2N

D704	8-719-200-77	DIODE	10E2N
D705	8-719-933-33	DIODE	HZS6A1L
D706	8-719-933-33	DIODE	HZS6A1L
D707	8-719-200-77	DIODE	10E2N
D708	8-719-200-77	DIODE	10E2N

D709	8-719-987-63	DIODE	1N4148M
D711	8-719-000-78	DIODE	UZL-7L2
D712	8-719-200-77	DIODE	10E2N
D713	8-719-987-63	DIODE	1N4148M
D714	8-719-000-93	DIODE	UZL-7H1

Ref. No.	Part No.	Description	Remark
D715	8-719-987-63	DIODE	1N4148M
D718	8-719-200-77	DIODE	10E2N
D801	8-719-987-63	DIODE	1N4148M
D802	8-719-933-33	DIODE	HZS6A1L
D803	8-719-933-33	DIODE	HZS6A1L

D806	8-719-987-63	DIODE	1N4148M
D814	8-719-987-63	DIODE	1N4148M
D815	8-719-987-63	DIODE	1N4148M

## < FUSE >

△F701	1-532-285-00	FUSE, TIME-LAG (1.25A)	
△F702	1-532-285-00	FUSE, TIME-LAG (1.25A)	

## < IC >

IC301	8-759-111-44	IC	uPC4570C-1
IC302	8-752-059-55	IC	CXA1331S
IC303	8-752-060-64	IC	CXA1198AP
IC304	8-759-106-56	IC	uPC1297CA
IC305	8-759-145-58	IC	uPC4558C

IC306	8-759-145-58	IC	uPC4558C
IC307	8-752-059-55	IC	CXA1331S
IC308	8-759-634-50	IC	M5218AL
IC309	8-759-634-50	IC	M5218AL
IC310	8-759-000-49	IC	MC14066BCP

IC311	8-759-000-49	IC	MC14066BCP (K511S)
IC312	8-759-000-49	IC	MC14066BCP (K511S)
IC701	8-759-634-51	IC	M5218AP
IC801	8-752-841-98	IC	CXP82316-018Q
IC802	8-759-803-42	IC	LA6500-FA

IC803	8-759-165-82	IC	PST600E-T
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## < JACK >

J301	1-565-258-11	JACK, PIN 4P (HEADPHONES)	
J302	1-568-519-41	JACK, LARGE TYPE (LINE IN/OUT)	

## < COIL >

L101	1-410-780-11	INDUCTOR	27mH
L121	1-410-778-11	INDUCTOR	18mH
L201	1-410-780-11	INDUCTOR	27mH
L221	1-410-778-11	INDUCTOR	18mH

## < FILTER >



LPF101	1-231-388-00	FILTER, LOW PASS	
LPF201	1-231-388-00	FILTER, LOW PASS	

## < TRANSISTOR >

Q101	8-729-900-74	TRANSISTOR	DTC143TS
Q102	8-729-900-80	TRANSISTOR	DTC114ES

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
Q103	8-729-922-37	TRANSISTOR	2SD2144S-UVW	R103	1-249-423-11	CARBON	3. 3K 5% 1/4W
Q104	8-729-620-05	TRANSISTOR	2SC2603-EF	R104	1-249-428-11	CARBON	8. 2K 5% 1/4W
Q105	8-729-900-80	TRANSISTOR	DTC114ES	R105	1-247-864-11	CARBON	24K 5% 1/4W
Q201	8-729-900-74	TRANSISTOR	DTC143TS	R106	1-249-414-11	CARBON	560 5% 1/4W
Q202	8-729-900-80	TRANSISTOR	DTC114ES	R107	1-249-421-11	CARBON	2. 2K 5% 1/4W
Q203	8-729-922-37	TRANSISTOR	2SD2144S-UVW	R108	1-247-860-11	CARBON	16K 5% 1/4W
Q204	8-729-620-05	TRANSISTOR	2SC2603-EF	R109	1-249-421-11	CARBON	2. 2K 5% 1/4W
Q205	8-729-900-80	TRANSISTOR	DTC114ES	R110	1-249-417-11	CARBON	1K 5% 1/4W
Q301	8-729-119-76	TRANSISTOR	2SA1175-HFE	R111	1-249-437-11	CARBON	47K 5% 1/4W
Q302	8-729-900-80	TRANSISTOR	DTC114ES	R112	1-249-423-11	CARBON	3. 3K 5% 1/4W
Q303	8-729-900-80	TRANSISTOR	DTC114ES	R113	1-249-424-11	CARBON	3. 9K 5% 1/4W
Q304	8-729-900-80	TRANSISTOR	DTC114ES	R114	1-249-429-11	CARBON	10K 5% 1/4W
Q305	8-729-119-76	TRANSISTOR	2SA1175-HFE	R115	1-249-421-11	CARBON	2. 2K 5% 1/4W
Q306	8-729-900-89	TRANSISTOR	DTC144ES	R116	1-249-425-11	CARBON	4. 7K 5% 1/4W
Q307	8-729-900-80	TRANSISTOR	DTC114ES	R117	1-249-441-11	CARBON	100K 5% 1/4W
Q308	8-729-900-80	TRANSISTOR	DTC114ES	R118	1-249-403-11	CARBON	68 5% 1/4W
Q309	8-729-900-80	TRANSISTOR	DTC114ES	R119	1-247-882-11	CARBON	130K 5% 1/4W
Q310	8-729-194-57	TRANSISTOR	2SC945-P	R120	1-249-426-11	CARBON	5. 6K 5% 1/4W
Q311	8-729-194-57	TRANSISTOR	2SC945-P	R121	1-249-421-11	CARBON	2. 2K 5% 1/4W
Q312	8-729-922-37	TRANSISTOR	2SD2144S-UVW	R122	1-249-420-11	CARBON	1. 8K 5% 1/4W
Q313	8-729-620-05	TRANSISTOR	2SC2603-EF	R123	1-247-838-00	CARBON	2K 5% 1/4W
Q314	8-729-620-05	TRANSISTOR	2SC2603-EF	R124	1-249-437-11	CARBON	47K 5% 1/4W
Q315	8-729-900-80	TRANSISTOR	DTC114ES	R125	1-249-421-11	CARBON	2. 2K 5% 1/4W
Q701	8-729-900-80	TRANSISTOR	DTC114ES	R126	1-249-425-11	CARBON	4. 7K 5% 1/4W
Q702	8-729-900-80	TRANSISTOR	DTC114ES	R127	1-249-435-11	CARBON	33K 5% 1/4W
Q703	8-729-141-83	TRANSISTOR	2SB1094-LK	△R128	1-219-153-11	FUSIBLE	10 5% 1/4W F
Q704	8-729-141-89	TRANSISTOR	2SD1585-K	R129	1-247-883-00	CARBON	150K 5% 1/4W
Q705	8-729-209-15	TRANSISTOR	2SD2012	R130	1-249-434-11	CARBON	27K 5% 1/4W
Q706	8-729-620-05	TRANSISTOR	2SC2603-EF	R131	1-247-874-11	CARBON	62K 5% 1/4W
Q707	8-729-900-80	TRANSISTOR	DTC114ES	R132	1-249-425-11	CARBON	4. 7K 5% 1/4W
Q708	8-729-119-76	TRANSISTOR	2SA1175-HFE	R133	1-249-410-11	CARBON	270 5% 1/4W
Q709	8-729-140-04	TRANSISTOR	2SB1116A-L	R134	1-247-864-11	CARBON	24K 5% 1/4W
Q801	8-729-900-89	TRANSISTOR	DTC144ES	R135	1-249-414-11	CARBON	560 5% 1/4W
Q802	8-729-801-84	TRANSISTOR	2SB1013-4	R136	1-249-429-11	CARBON	10K 5% 1/4W
Q803	8-729-900-61	TRANSISTOR	DTA114ES	R137	1-215-445-00	METAL	10K 1% 1/6W (K511S)
Q804	8-729-900-61	TRANSISTOR	DTA114ES	R138	1-215-445-00	METAL	10K 1% 1/6W (K511S)
Q805	8-729-900-61	TRANSISTOR	DTA114ES	R139	1-215-440-00	METAL	6. 2K 1% 1/6W (K511S)
Q806	8-729-900-89	TRANSISTOR	DTC144ES	R140	1-215-449-00	METAL	15K 1% 1/6W (K511S)
Q807	8-729-115-28	TRANSISTOR	BN1L3Z-K	R141	1-249-419-11	CARBON	1. 5K 5% 1/4W
Q808	8-729-900-61	TRANSISTOR	DTA114ES	R142	1-249-421-11	CARBON	2. 2K 5% 1/4W
Q809	8-729-900-61	TRANSISTOR	DTA114ES	R143	1-247-844-11	CARBON	3. 6K 5% 1/4W
Q810	8-729-900-80	TRANSISTOR	DTC114ES	R144	1-249-409-11	CARBON	220 5% 1/4W
Q813	8-729-900-61	TRANSISTOR	DTA114ES	R145	1-249-426-11	CARBON	5. 6K 5% 1/4W
Q814	8-729-900-61	TRANSISTOR	DTA114ES	R146	1-249-437-11	CARBON	47K 5% 1/4W (K511S)
Q815	8-729-900-61	TRANSISTOR	DTA114ES				
< RESISTOR >							
R101	1-249-433-11	CARBON	22K 5% 1/4W				
R102	1-249-417-11	CARBON	1K 5% 1/4W				

The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

# MAIN

Ref. No.	Part No.	Description			Remark
R147	1-215-449-00	METAL	15K	1%	1/6W (K511S)
R148	1-215-424-00	METAL	1. 3K	1%	1/6W (K511S)
R149	1-215-425-00	METAL	1. 5K	1%	1/6W (K511S)
R150	1-215-447-00	METAL	12K	1%	1/6W (K511S)
R151	1-249-437-11	CARBON	47K	5%	1/4W (K511S)
R152	1-247-887-00	CARBON	220K	5%	1/4W
R201	1-249-433-11	CARBON	22K	5%	1/4W
R202	1-249-417-11	CARBON	1K	5%	1/4W
R203	1-249-423-11	CARBON	3. 3K	5%	1/4W
R204	1-249-428-11	CARBON	8. 2K	5%	1/4W
R205	1-247-864-11	CARBON	24K	5%	1/4W
R206	1-249-414-11	CARBON	560	5%	1/4W
R207	1-249-421-11	CARBON	2. 2K	5%	1/4W
R208	1-247-860-11	CARBON	16K	5%	1/4W
R209	1-249-421-11	CARBON	2. 2K	5%	1/4W
R210	1-249-417-11	CARBON	1K	5%	1/4W
R211	1-249-437-11	CARBON	47K	5%	1/4W
R212	1-249-423-11	CARBON	3. 3K	5%	1/4W
R213	1-249-424-11	CARBON	3. 9K	5%	1/4W
R214	1-249-429-11	CARBON	10K	5%	1/4W
R215	1-249-421-11	CARBON	2. 2K	5%	1/4W
R216	1-249-425-11	CARBON	4. 7K	5%	1/4W
R217	1-249-441-11	CARBON	100K	5%	1/4W
R218	1-249-403-11	CARBON	68	5%	1/4W
R219	1-247-882-11	CARBON	130K	5%	1/4W
R220	1-249-426-11	CARBON	5. 6K	5%	1/4W
R221	1-249-421-11	CARBON	2. 2K	5%	1/4W
R222	1-249-420-11	CARBON	1. 8K	5%	1/4W
R223	1-247-838-00	CARBON	2K	5%	1/4W
R224	1-249-437-11	CARBON	47K	5%	1/4W
R225	1-249-421-11	CARBON	2. 2K	5%	1/4W
R226	1-249-425-11	CARBON	4. 7K	5%	1/4W
R227	1-249-435-11	CARBON	33K	5%	1/4W
△R228	1-219-153-11	FUSIBLE	10	5%	1/4W F
R229	1-247-883-00	CARBON	150K	5%	1/4W
R230	1-249-434-11	CARBON	27K	5%	1/4W
R231	1-247-874-11	CARBON	62K	5%	1/4W
R232	1-249-425-11	CARBON	4. 7K	5%	1/4W
R233	1-249-410-11	CARBON	270	5%	1/4W
R234	1-247-864-11	CARBON	24K	5%	1/4W
R235	1-249-414-11	CARBON	560	5%	1/4W
R236	1-249-429-11	CARBON	10K	5%	1/4W
R237	1-215-445-00	METAL	10K	1%	1/6W (K511S)

Ref. No.	Part No.	Description			Remark
R238	1-215-445-00	METAL	10K	1%	1/6W (K511S)
R239	1-215-440-00	METAL	6. 2K	1%	1/6W (K511S)
R240	1-215-449-00	METAL	15K	1%	1/6W (K511S)
R241	1-249-419-11	CARBON	1. 5K	5%	1/4W
R242	1-249-421-11	CARBON	2. 2K	5%	1/4W
R243	1-247-844-11	CARBON	3. 6K	5%	1/4W
R244	1-249-409-11	CARBON	220	5%	1/4W
R245	1-249-426-11	CARBON	5. 6K	5%	1/4W
R246	1-249-437-11	CARBON	47K	5%	1/4W (K511S)
R247	1-215-449-00	METAL	15K	1%	1/6W (K511S)
R248	1-215-424-00	METAL	1. 3K	1%	1/6W (K511S)
R249	1-215-425-00	METAL	1. 5K	1%	1/6W (K511S)
R250	1-215-447-00	METAL	12K	1%	1/6W (K511S)
R251	1-249-437-11	CARBON	47K	5%	1/4W (K511S)
R252	1-247-887-00	CARBON	220K	5%	1/4W
R301	1-249-417-11	CARBON	1K	5%	1/4W
R302	1-247-848-11	CARBON	5. 1K	5%	1/4W
R303	1-249-421-11	CARBON	2. 2K	5%	1/4W
R304	1-249-421-11	CARBON	2. 2K	5%	1/4W
R305	1-215-455-00	METAL	27K	1%	1/6W
R306	1-249-436-11	CARBON	39K	5%	1/4W
R307	1-249-433-11	CARBON	22K	5%	1/4W
R308	1-249-441-11	CARBON	100K	5%	1/4W
R309	1-247-864-11	CARBON	24K	5%	1/4W
R310	1-249-441-11	CARBON	100K	5%	1/4W
R311	1-249-441-11	CARBON	100K	5%	1/4W
R312	1-249-433-11	CARBON	22K	5%	1/4W
R313	1-247-878-00	CARBON	91K	5%	1/4W
R314	1-249-439-11	CARBON	68K	5%	1/4W
R315	1-247-870-11	CARBON	43K	5%	1/4W
R316	1-249-435-11	CARBON	33K	5%	1/4W
R317	1-247-876-11	CARBON	75K	5%	1/4W
R318	1-247-887-00	CARBON	220K	5%	1/4W
R319	1-247-878-00	CARBON	91K	5%	1/4W
R320	1-247-874-11	CARBON	62K	5%	1/4W
R321	1-247-878-00	CARBON	91K	5%	1/4W
R322	1-249-437-11	CARBON	47K	5%	1/4W
R323	1-249-439-11	CARBON	68K	5%	1/4W
R324	1-247-886-11	CARBON	200K	5%	1/4W
R325	1-247-874-11	CARBON	62K	5%	1/4W

The components identified by mark **△** or dotted line with mark **△** are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
R326	1-247-874-11	CARBON	62K	5%	1/4W	R708	1-249-419-11	CARBON	1.5K	5%	1/4W
R327	1-249-435-11	CARBON	33K	5%	1/4W	R709	1-249-425-11	CARBON	4.7K	5%	1/4W
R328	1-249-438-11	CARBON	56K	5%	1/4W	R711	1-249-417-11	CARBON	1K	5%	1/4W
R329	1-249-440-11	CARBON	82K	5%	1/4W	R712	1-249-427-11	CARBON	6.8K	5%	1/4W
R330	1-247-836-11	CARBON	1.6K	5%	1/4W	R713	1-249-427-11	CARBON	6.8K	5%	1/4W
R331	1-249-417-11	CARBON	1K	5%	1/4W	R714	1-249-419-11	CARBON	1.5K	5%	1/4W
R332	1-249-422-11	CARBON	2.7K	5%	1/4W	R715	1-249-425-11	CARBON	4.7K	5%	1/4W
R333	1-249-417-11	CARBON	1K	5%	1/4W	R716	1-249-429-11	CARBON	10K	5%	1/4W
R334	1-249-417-11	CARBON	1K	5%	1/4W	R718	1-249-433-11	CARBON	22K	5%	1/4W
R335	1-247-822-11	CARBON	430	5%	1/4W	R719	1-249-429-11	CARBON	10K	5%	1/4W
R336	1-249-417-11	CARBON	1K	5%	1/4W	R720	1-249-423-11	CARBON	3.3K	5%	1/4W
R337	1-249-437-11	CARBON	47K	5%	1/4W	R721	1-249-437-11	CARBON	47K	5%	1/4W
R338	1-249-421-11	CARBON	2.2K	5%	1/4W	R801	1-249-435-11	CARBON	33K	5%	1/4W
R339	1-249-440-11	CARBON	82K	5%	1/4W	R803	1-247-862-11	CARBON	20K	5%	1/4W
R340	1-249-440-11	CARBON	82K	5%	1/4W	R802	1-249-429-11	CARBON	10K	5%	1/4W
R341	1-249-390-11	CARBON	5.6	5%	1/6W	R804	1-249-429-11	CARBON	10K	5%	1/4W
R342	1-249-390-11	CARBON	5.6	5%	1/6W	R805	1-249-417-11	CARBON	1K	5%	1/4W
R343	1-249-437-11	CARBON	47K	5%	1/4W	R806	1-249-417-11	CARBON	1K	5%	1/4W
R344	1-249-429-11	CARBON	10K	5%	1/4W	R807	1-249-430-11	CARBON	12K	5%	1/4W
R345	1-249-441-11	CARBON	100K	5%	1/4W	R808	1-249-433-11	CARBON	22K	5%	1/4W
R346	1-249-441-11	CARBON	100K	5%	1/4W	R809	1-249-433-11	CARBON	22K	5%	1/4W
R347	1-249-429-11	CARBON	10K	5%	1/4W	R810	1-249-435-11	CARBON	33K	5%	1/4W
R348	1-249-428-11	CARBON	8.2K	5%	1/4W	R811	1-249-425-11	CARBON	4.7K	5%	1/4W
R349	1-249-441-11	CARBON	100K	5%	1/4W	R812	1-249-425-11	CARBON	4.7K	5%	1/4W
R350	1-249-441-11	CARBON	100K	5%	1/4W	R813	1-247-866-11	CARBON	30K	5%	1/4W
R351	1-249-423-11	CARBON	3.3K	5%	1/4W	R814	1-247-866-11	CARBON	30K	5%	1/4W
R352	1-249-429-11	CARBON	10K	5%	1/4W	R815	1-249-437-11	CARBON	47K	5%	1/4W
R353	1-249-429-11	CARBON	10K	5%	1/4W	R817	1-249-441-11	CARBON	100K	5%	1/4W
R354	1-249-417-11	CARBON	1K	5%	1/4W	R818	1-249-417-11	CARBON	1K	5%	1/4W
R355	1-249-430-11	CARBON	12K	5%	1/4W	R821	1-249-433-11	CARBON	22K	5%	1/4W
R356	1-249-435-11	CARBON	33K	5%	1/4W	R822	1-249-393-11	CARBON	10	5%	1/4W
R357	1-247-848-11	CARBON	5.1K	5%	1/4W	R823	1-249-437-11	CARBON	47K	5%	1/4W
R358	1-249-437-11	CARBON	47K	5%	1/4W	R824	1-249-437-11	CARBON	47K	5%	1/4W
R359	1-249-434-11	CARBON	27K	5%	1/4W	R825	1-249-429-11	CARBON	10K	5%	1/4W
R360	1-249-429-11	CARBON	10K	5%	1/4W	R826	1-249-429-11	CARBON	10K	5%	1/4W
R361	1-249-437-11	CARBON	47K	5%	1/4W	R827	1-249-405-11	CARBON	100	5%	1/4W
R363	1-215-455-00	METAL	27K	1%	1/6W	R828	1-249-429-11	CARBON	10K	5%	1/4W
R364	1-249-437-11	CARBON	47K	5%	1/4W	R829	1-249-429-11	CARBON	10K	5%	1/4W
R365	1-249-431-11	CARBON	15K	5%	1/4W	R830	1-249-429-11	CARBON	10K	5%	1/4W
R366	1-247-862-11	CARBON	20K	5%	1/4W	R831	1-249-429-11	CARBON	10K	5%	1/4W
R367	1-249-429-11	CARBON	10K	5%	1/4W	R832	1-249-429-11	CARBON	10K	5%	1/4W
R368	1-249-425-11	CARBON	4.7K	5%	1/4W	< VARIABLE RESISTOR >					
R701	1-249-433-11	CARBON	22K	5%	1/4W	RV101	1-238-601-11	RES, ADJ, CARBON	22K		
R702	1-249-425-11	CARBON	4.7K	5%	1/4W	RV102	1-238-602-11	RES, ADJ, CARBON	47K		
R703	1-249-420-11	CARBON	1.8K	5%	1/4W	RV103	1-238-601-11	RES, ADJ, CARBON	22K		
R704	1-249-421-11	CARBON	2.2K	5%	1/4W	RV121	1-238-599-11	RES, ADJ, CARBON	4.7K		
R705	1-249-427-11	CARBON	6.8K	5%	1/4W	RV201	1-238-601-11	RES, ADJ, CARBON	22K		
R706	1-249-419-11	CARBON	1.5K	5%	1/4W						
R707	1-249-429-11	CARBON	10K	5%	1/4W						

# MAIN PANEL SW-A

Ref.No.	Part No.	Description	Remark
RV202	1-238-602-11	RES. ADJ. CARBON 47K	
RV203	1-238-601-11	RES. ADJ. CARBON 22K	
RV221	1-238-599-11	RES. ADJ. CARBON 4.7K	
RV306	1-223-387-21	RES. ADJ. CARBON 330K	

## < TRANSFORMER >

T101	1-433-344-11	TRANSFORMER, BIAS OSCILLATION	
T201	1-433-344-11	TRANSFORMER, BIAS OSCILLATION	
T301	1-423-614-11	TRANSFORMER, BIAS OSCILLATION	

## < TEST PIN >

* TP301	1-564-506-11	PLUG, CONNECTOR 3P	
* TP801	1-564-505-11	PLUG, CONNECTOR 2P	

## < CRYSTAL >

X801	1-579-175-11	VIBRATOR, CERAMIC	
*****			
*	A-2007-007-A	PANEL BOARD, COMPLETE (K411)	
		*****	
*	A-2007-010-A	PANEL BOARD, COMPLETE (K511S)	
		*****	
*	3-386-245-01	HOLDER (FL)	

## < CONNECTOR >

* CNP903	1-568-845-11	SOCKET, CONNECTOR 31P	
* CNP904	1-568-830-11	SOCKET, CONNECTOR 11P	
* CNP906	1-568-824-11	SOCKET, CONNECTOR 5P	
* CNP907	1-568-824-11	SOCKET, CONNECTOR 5P	

## < IC >

IC901	8-741-100-48	IC	SBX1610-59
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## < RESISTOR >

R153	1-249-425-11	CARBON	4.7K	5%	1/4W
R253	1-249-425-11	CARBON	4.7K	5%	1/4W
R362	1-249-429-11	CARBON	10K	5%	1/4W
R901	1-247-838-00	CARBON	2K	5%	1/4W
R902	1-249-422-11	CARBON	2.7K	5%	1/4W
R903	1-247-848-11	CARBON	5.1K	5%	1/4W
R904	1-249-430-11	CARBON	12K	5%	1/4W
R905	1-247-866-11	CARBON	30K	5%	1/4W
R906	1-249-422-11	CARBON	2.7K	5%	1/4W
R907	1-249-424-11	CARBON	3.9K	5%	1/4W
R908	1-249-428-11	CARBON	8.2K	5%	1/4W
R909	1-249-434-11	CARBON	27K	5%	1/4W
R910	1-247-838-00	CARBON	2K	5%	1/4W
R911	1-249-422-11	CARBON	2.7K	5%	1/4W

Ref.No.	Part No.	Description	Remark
R912	1-247-848-11	CARBON	5.1K 5% 1/4W
R913	1-249-430-11	CARBON	12K 5% 1/4W
R914	1-247-866-11	CARBON	30K 5% 1/4W

## < VARIABLE RESISTOR >

RV301	1-241-820-11	RES. VAR. CARBON 50K/50K (REC LEVEL)	
RV302	1-241-897-11	RES. VAR. CARBON 50K/50K (BALANCE)	
RV303	1-241-896-11	RES. VAR. CARBON 10K (BIAS)	
RV304	1-223-366-11	RES. VAR. CARBON 5K/5K (REC LEVEL)	

## < SWITCH >

S901	1-554-303-21	SWITCH, TACTILE (▷)	
S902	1-554-303-21	SWITCH, TACTILE (PAUSE:III)	
S903	1-554-303-21	SWITCH, TACTILE (RESET)	
S904	1-554-303-21	SWITCH, TACTILE (MEMORY)	
S905	1-554-303-21	SWITCH, TACTILE (MONITOR)	

S906	1-554-303-21	SWITCH, TACTILE (■)	
S907	1-554-303-21	SWITCH, TACTILE (<<)	
S908	1-554-303-21	SWITCH, TACTILE (▷▷)	
S909	1-554-303-21	SWITCH, TACTILE (REC)	
S910	1-554-303-21	SWITCH, TACTILE (REC MUTE)	

S911	1-554-303-21	SWITCH, TACTILE (CALIBRATION)	
S921	1-692-409-11	SWITCH, PUSH (1 KEY) (POWER)	
S922	1-554-118-00	SWITCH, PUSH (1 KEY) (MPX FILTER)	
S923	1-692-408-11	SWITCH, ROTARY (DOLBY NR) (K411)	
S923	1-692-410-11	SWITCH, ROTARY (DOLBY NR) (K511S)	

## < FILTER >

VFD901	1-517-163-11	INDICATOR TUBE, FLUORESCENT	
*****			

*	1-634-841-14	SW-A BOARD	
		*****	

3-343-419-01	HOLDER (S SENSER A)	
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## < CONNECTOR >

* CNP81	1-568-852-11	SOCKET, CONNECTOR 9P	
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## < IC >

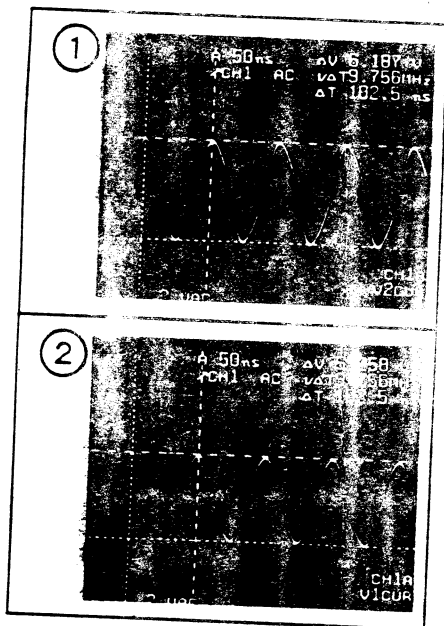
IC81	8-719-710-03	DIODE	NJL5165K-B
IC82	8-719-710-03	DIODE	NJL5165K-B

## < RESISTOR >

R81	1-249-414-11	CARBON	560	5%	1/4W
R83	1-247-834-11	CARBON	1.3K	5%	1/4W
R84	1-249-417-11	CARBON	1K	5%	1/4W
R85	1-249-408-11	CARBON	180	5%	1/4W
R86	1-249-408-11	CARBON	180	5%	1/4W



## ● WAVEFORMS

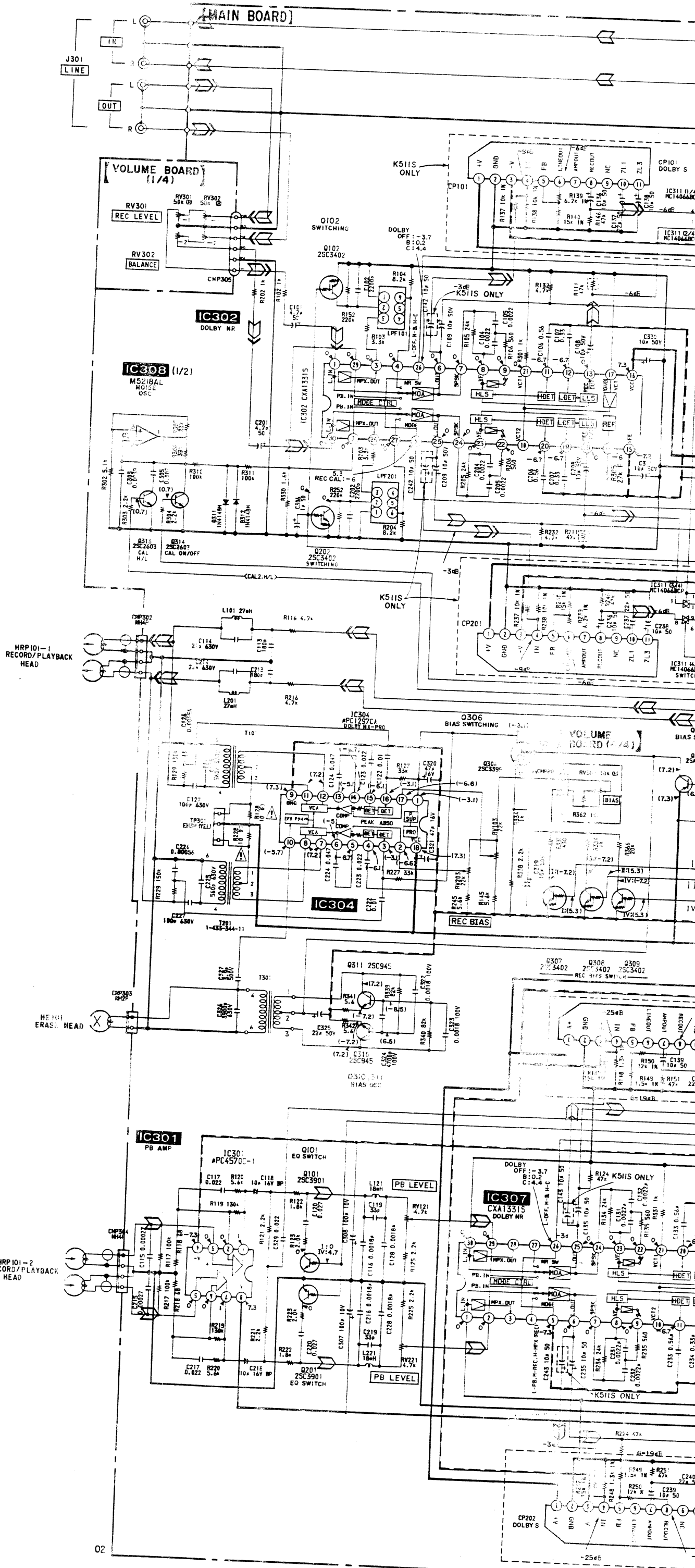


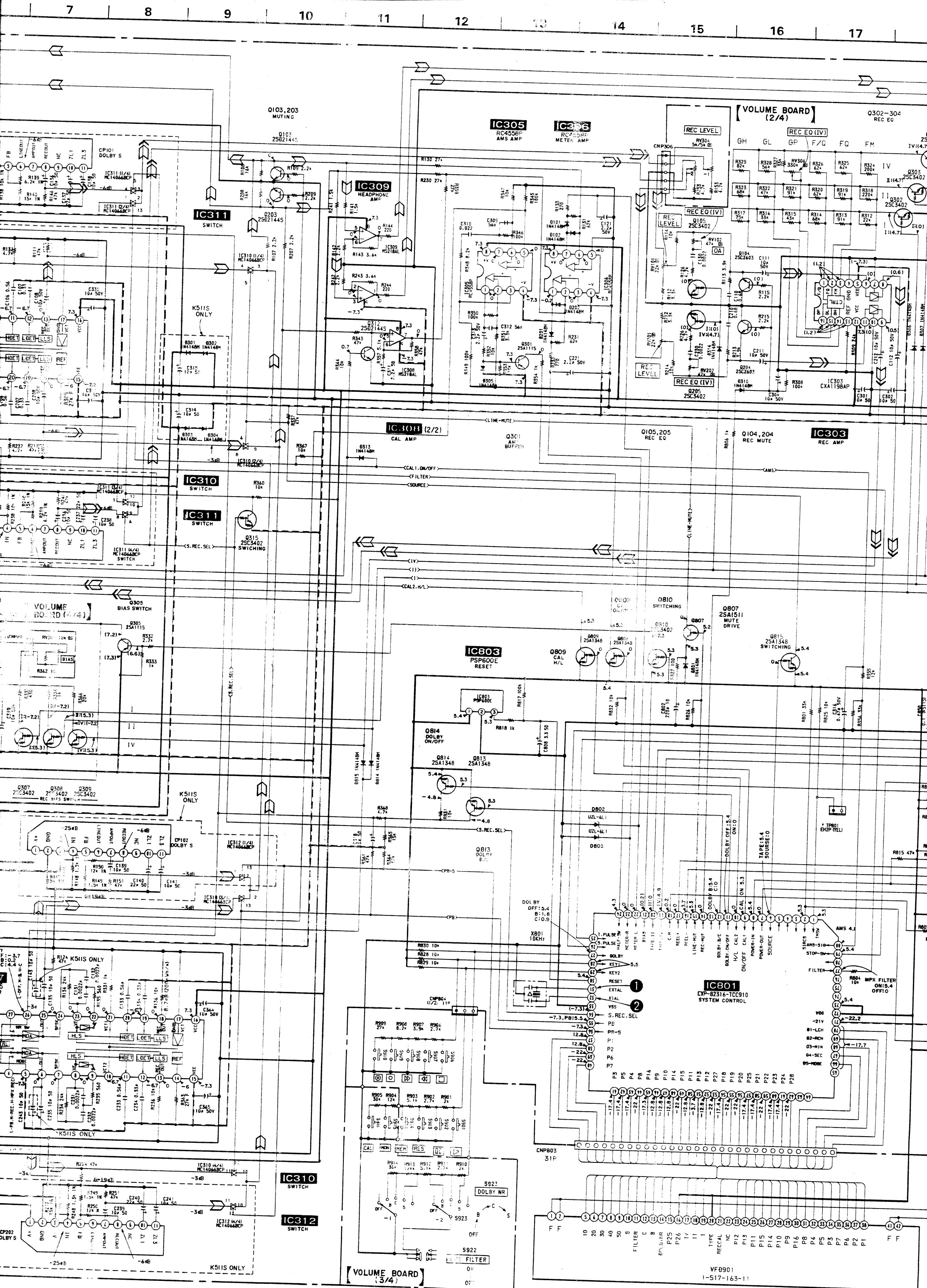
### Note :

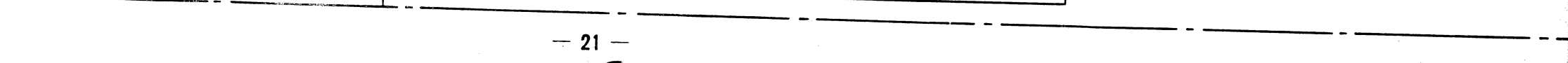
- All capacitors are in  $\mu F$  unless otherwise noted, pF:  $\mu F$  50WV or less are not indicated except for electrolytic and tantalums.
- All resistors are in  $\Omega$  and  $\frac{1}{4}W$  or less unless otherwise specified.
- % : indicates tolerance.
- $\Delta$  : internal component.
- $\text{---}$  : fusible resistor.

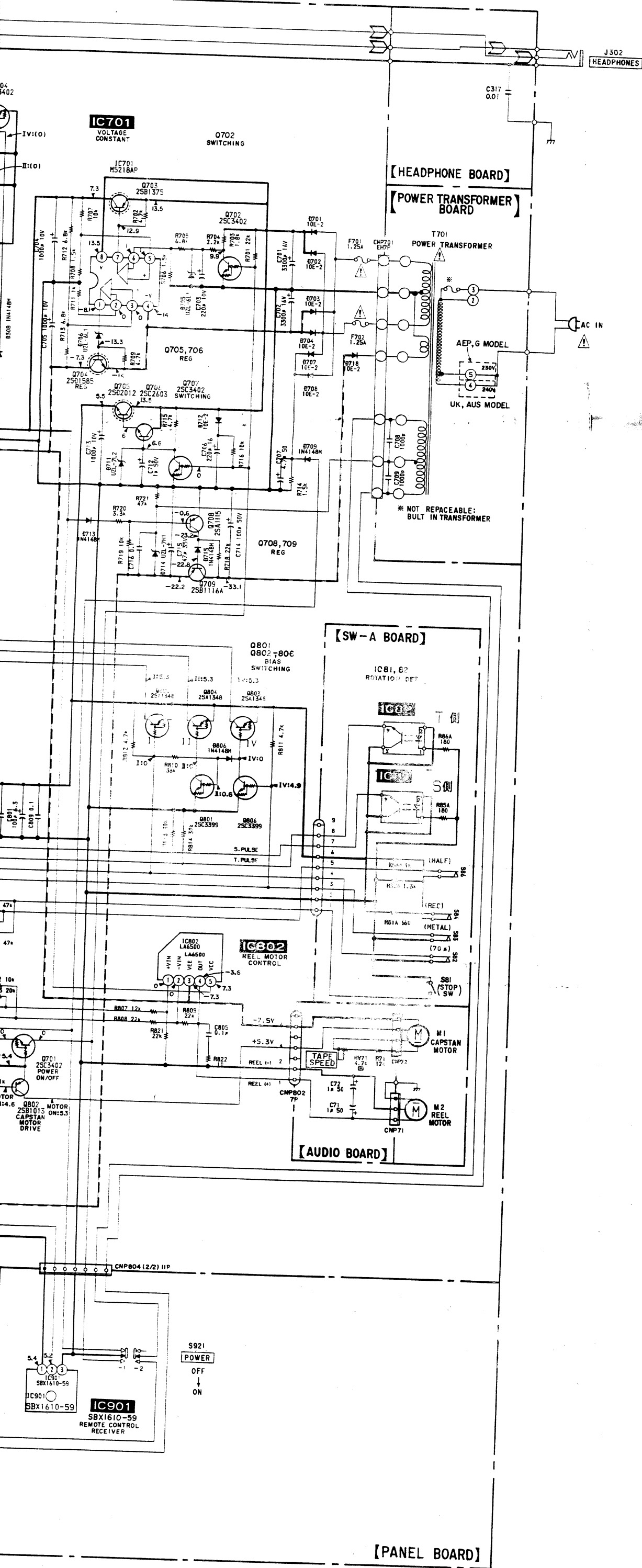
Note : The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

- $\text{---}$  : B+ Line
- $\text{---}$  : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
- no mark : STOP
- ( ) : REC
- Voltages are taken with a VOM (Input impedance  $10M\Omega$ ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with an oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
- $\text{---}$  : PB
- $\text{---}$  : REC
- G : Germany
- AUS : Australian





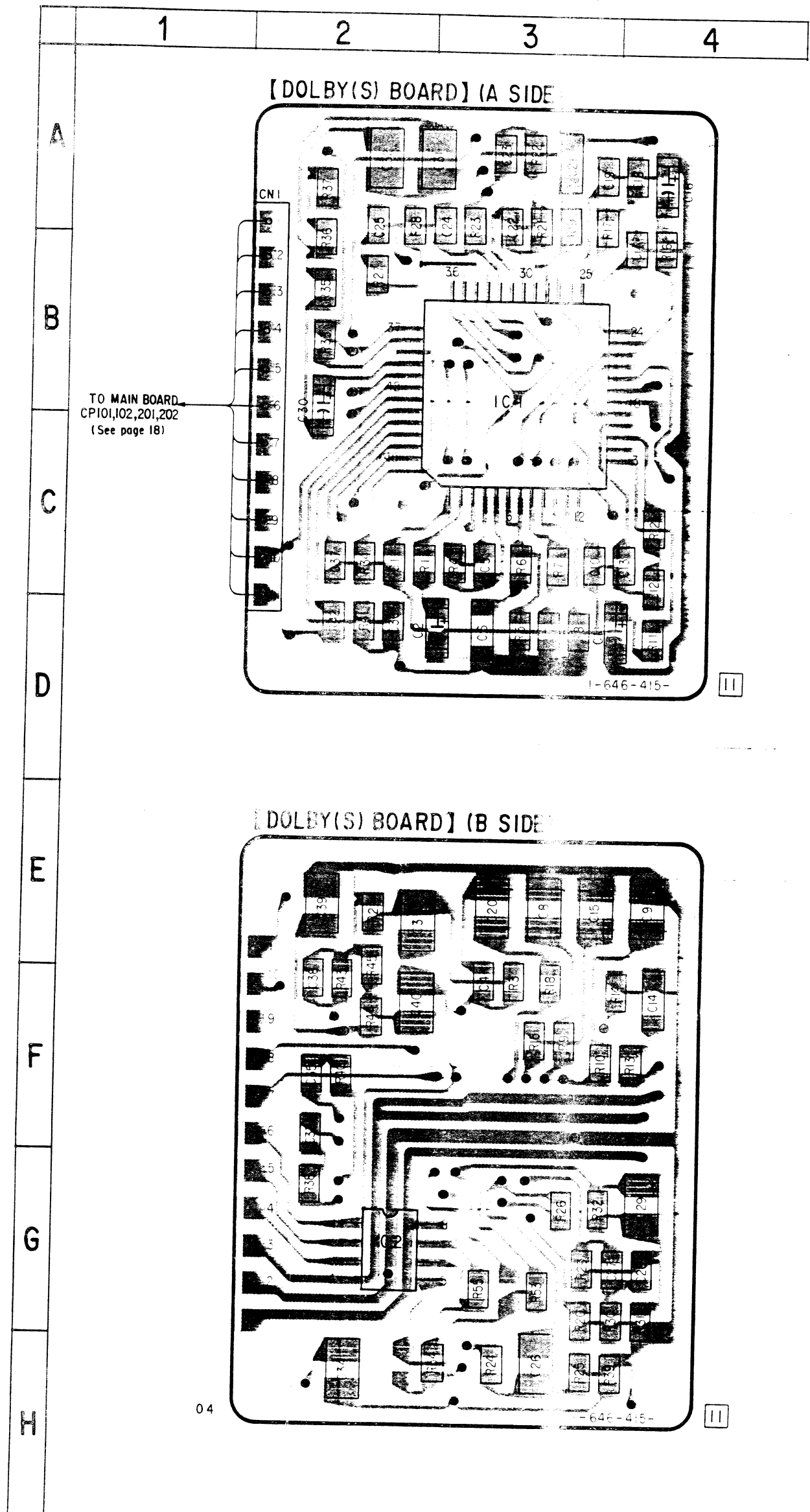






5-4. PRINTED WIRING BOARDS (DOLBY (S) BOARD)

• Refer to page 15 for Note.



5-5.

A

B

C

D

E

F

G

H

I

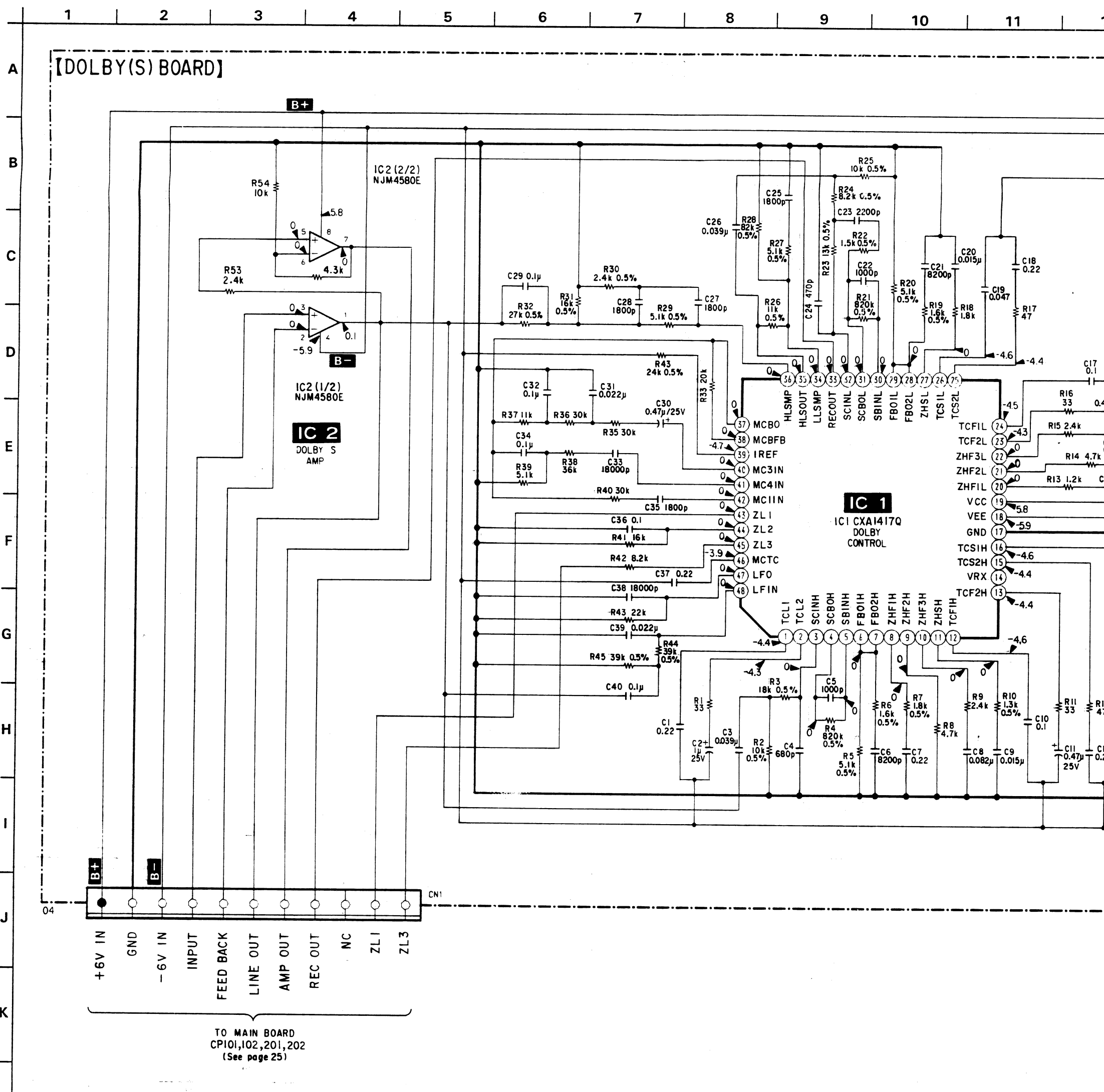
J

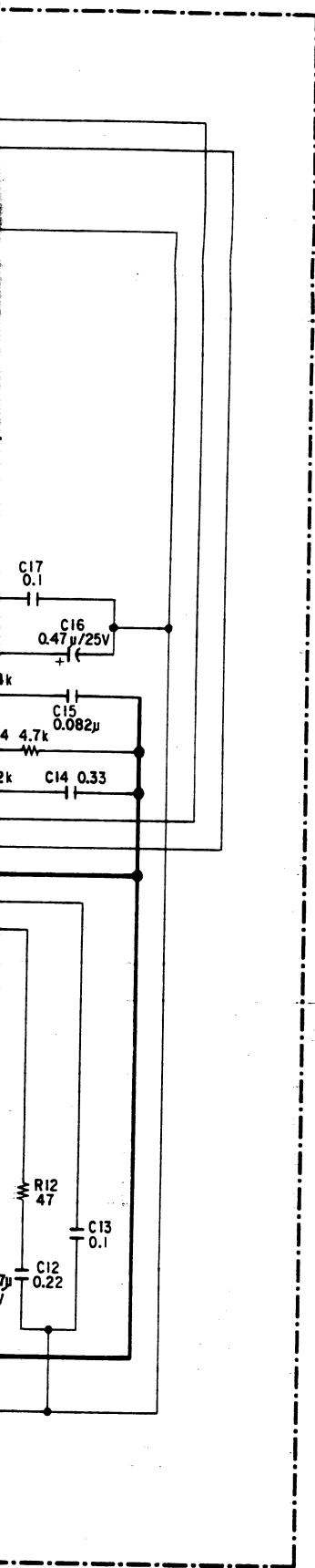
K

04

# 5-5. SCHEMATIC DIAGRAM (DOLBY (S) BOARD)

• Refer to page 19 for Note.





## SECTION 6 EXPLODED VIEWS

### NOTE:

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Color indication of Appearance Parts  
Example :  
KNOB, BALANCE (WHITE)....(RED)

Parts color      Cabinet's color

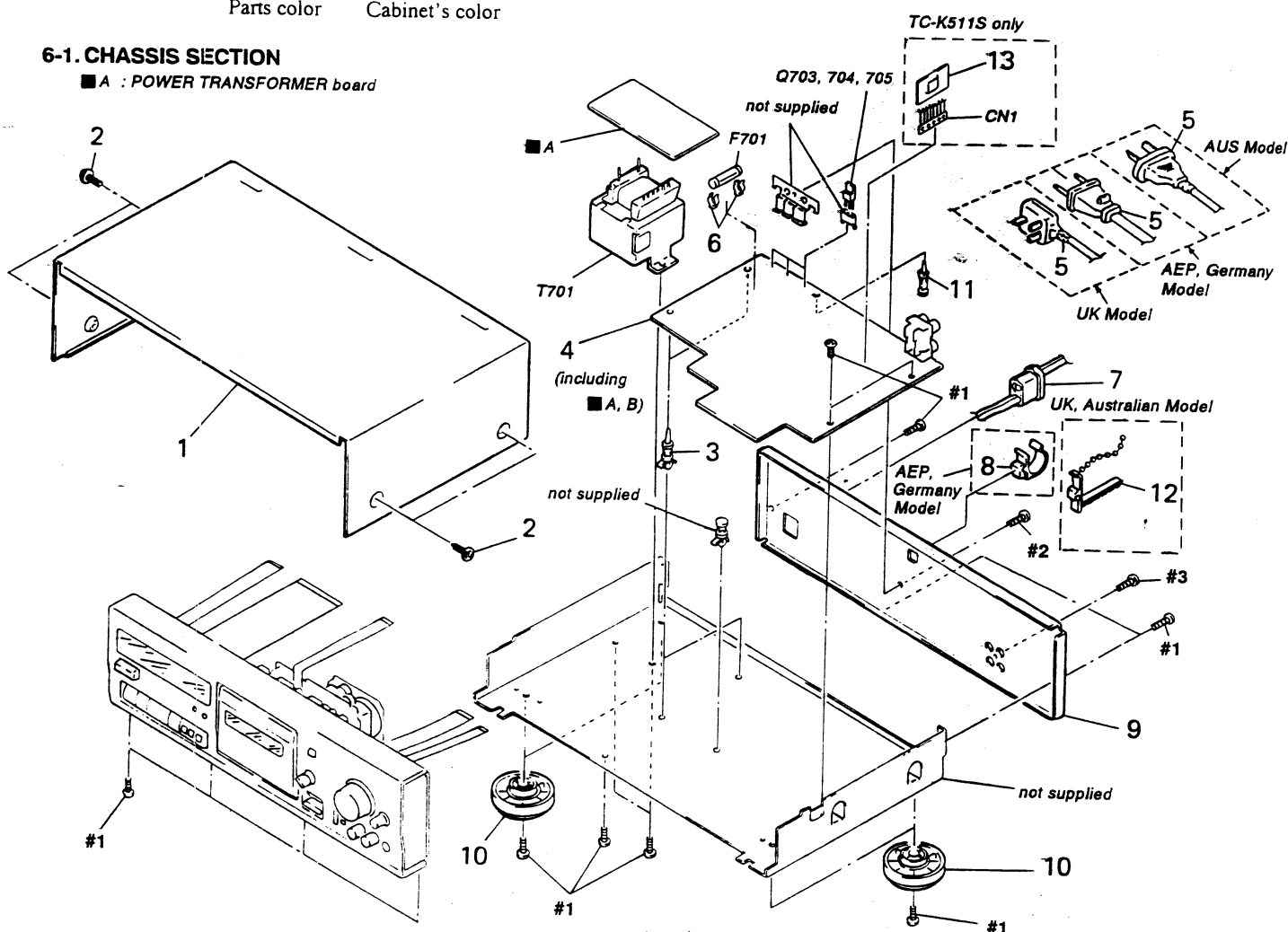
- Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware ( # mark ) list is given in the last of this parts list.

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

• AUS : Australian

### 6-1. CHASSIS SECTION

■ A : POWER TRANSFORMER board



Ref. No.	Part No.	Description	Remark
1	3-332-578-61	CASE	
2	3-704-366-01	SCREW (CASE) (M3X8)	
* 3	3-346-265-11	HOLDER, PC BOARD	
* 4	A-2007-008-A	MAIN BOARD, COMPLETE (K411)	
* 4	A-2007-009-A	MAIN BOARD, COMPLETE (K511S)	
$\Delta$ 5	1-575-651-21	CORD, POWER (AEP, Germany)	
$\Delta$ 5	1-696-586-11	CORD, POWER (UK)	
$\Delta$ 5	1-696-845-11	CORD, POWER (AUS)	
* 6	1-533-213-31	HOLDER, FUSE	
* 7	3-703-244-00	BUSHING (2104), CORD	
* 8	4-949-235-01	HOOK (AEP, Germany)	
* 9	3-387-832-01	PANEL, BACK (K511S:UK, AUS)	
* 9	3-387-832-11	PANEL, BACK (K511S:AEP, Germany)	

Ref. No.	Part No.	Description	Remark
* 9	3-387-835-01	PANEL, BACK (K411:UK, AUS)	
* 9	3-387-835-11	PANEL, BACK (K411:AEP, Germany)	
10	4-956-885-11	FOOT (F58175S2W)	
* 11	3-669-610-00	SPACER	
12	4-956-370-02	BAND, PLUG FIXED (US, AUS)	
* 13	A-2006-954-A	DOLBY(S) BOARD, COMPLETE (K511S)	
* CN1	1-537-473-11	TERMINAL (LEAD PIN) (K511S)	
$\Delta$ F701	1-532-285-00	FUSE, TIME-LAG (1.25A)	
$\Delta$ F702	1-532-285-00	FUSE, TIME-LAG (1.25A)	
Q703	8-729-141-83	TRANSISTOR 2SB1094-LK	
Q704	8-729-141-89	TRANSISTOR 2SD1585-K	
Q705	8-729-209-15	TRANSISTOR 2SD2012	
$\Delta$ T701	1-423-613-11	TRANSFORMER, POWER	

**SW-A**

Ref.No.	Part No.	Description	Remark
< SWITCH >			
S81	1-571-958-11	SWITCH, PUSH (1 KEY) (STOP SW)	
S82	1-571-281-21	SWITCH, LEAF (CrO <sub>2</sub> )	
S83	1-571-281-21	SWITCH, LEAF (METAL)	
S84	1-571-281-21	SWITCH, LEAF (REC)	
S86	1-571-281-21	SWITCH, LEAF (HALF)	

\*\*\*\*\*

# MISCELLANEOUS

\*\*\*\*\*

△5	1-575-651-21	CORD, POWER (AEP, Germany)	
△5	1-696-586-11	CORD, POWER (UK)	
△5	1-696-845-11	CORD, POWER (AUS)	
64	1-751-097-11	WIRE (FLAT TYPE) (11 CORE)	
65	1-751-096-11	WIRE (FLAT TYPE) (31 CORE)	
71	1-575-781-11	WIRE, FLAT TYPE (9 CORE)	
72	1-575-780-11	WIRE, FLAT TYPE (7 CORE)	
77	1-575-778-11	WIRE, FLAT TYPE (5 CORE)	
78	1-751-098-11	WIRE (FLAT TYPE) (5 CORE)	
120	1-638-983-11	PC BOARD, MOTOR FLEXIBLE	
△F701	1-532-285-00	FUSE, TIME-LAG	
△F702	1-532-285-00	FUSE, TIME-LAG	
HE101	1-543-673-11	HEAD, MAGNETIC (ERASE)	
HRP101	1-543-733-11	HEAD, MAGNETIC (RECORD/PLAYBACK)	
M1	X-3363-501-1	MOTOR ASSY, REEL	
M2	X-3365-377-1	MOTOR ASSY, CAPSTAN	
Q703	8-729-141-83	TRANSISTOR 2SB1094-LK	
Q704	8-729-141-89	TRANSISTOR 2SD1585-K	
Q705	8-729-209-15	TRANSISTOR 2SD2012	
△T701	1-423-613-11	TRANSFORMER, POWER	

\*\*\*\*\*

# ACCESSORIES & PACKING MATERIALS

\*\*\*\*\*

	1-558-271-11	CORD, CONNECTION	
	1-558-271-11	CORD, CONNECTION	
	1-696-170-11	CORD, CONNECTION	
*	3-350-830-01	CUSHION	
*	3-388-323-51	INDIVIDUAL CARTON (K511S)	
	3-388-323-61	INDIVIDUAL CARTON (K411)	
	3-756-691-11	MANUAL, INSTRUCTION (AEP) (ENGLISH/FRENCH/SPANISH/PORTUGUESE)	
	3-756-691-41	MANUAL, INSTRUCTION (AEP) (GERMAN/DUTCH/SWEDISH/ITALIAN)	
	3-756-691-51	MANUAL, INSTRUCTION (GERMAN) (Germany)	
	3-756-691-61	MANUAL, INSTRUCTION (ENGLISH) (US, AUS)	
	3-756-691-71	MANUAL, INSTRUCTION (DANISH/FINNISH) (AEP)	

Ref.No.	Part No.	Description	Remark
***** HARDWARE LIST *****			
#1	7-682-548-09	SCREW +BVTT 3X8 (S)	
#2	7-682-547-09	SCREW +BVTT 3X6 (S)	
#3	7-621-849-00	SCREW (BV/RING)	
#4	7-621-773-95	SCREW +BVTT 2.6X6 (S)	
#5	7-685-134-19	SCREW (- PTPWH) (2.6X8)	
#6	7-621-775-00	SCREW +B 2.6X3	
#7	7-627-556-08	SCREW +P 2.6X2.8	
#8	7-621-772-10	SCREW +B 2X4	

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.



246

# TC-K411

## SONY SERVICE MANUAL

6790  
AEP Model  
UK Model  
Australian Model

### SUPPLEMENT-1

File this Supplement with the Service Manual.

Subject : Correction  
: Block Diagram

## CORRECTION

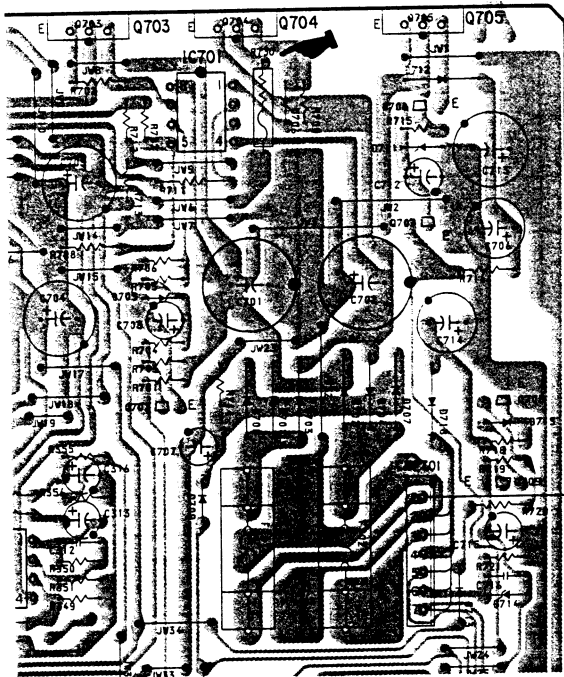
Correct your service manual as shown below.

: indicates corrected portion.

### SECTION 5 DIAGRAMS

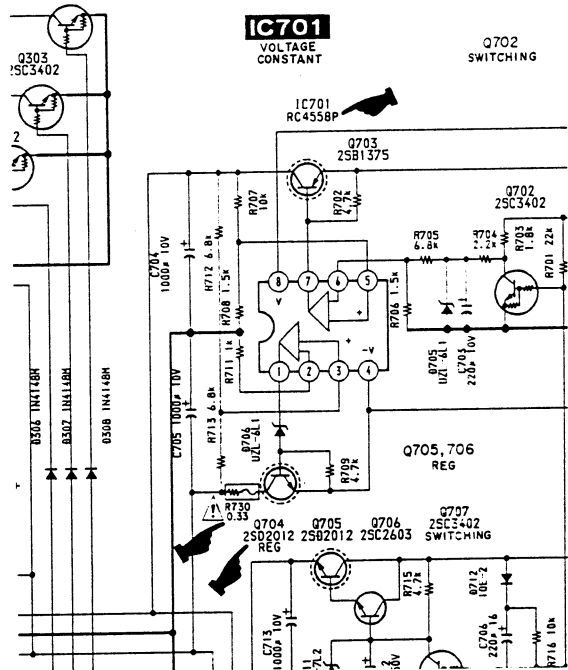
#### 5-2. PRINTED WIRING BOARD (MAIN SECTION)

Page 17, Address B-16



#### 5-3. SCHEMATIC DIAGRAM (MAIN SECTION)

Page 22, Address D-19




### SECTION 7 ELECTRICAL PARTS LIST

Page	INCORRECT				CORRECT			
	Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
36	IC701	8-759-634-51	IC M5218AP		IC701	8-759-145-58	IC $\mu$ PC4558C	
37	Q704	8-729-141-89	IC TRANSISTOR 2SD1585-K		Q704	8-729-209-15	IC TRANSISTOR 2SD2012	
39					$\Delta$ R730	1-219-137-11	FUSIBLE 0.33 10% 1/4W F	
41		3-756-691-61	MANUAL, INSTRUCTION (ENGLISH) (US, AUS)			3-756-691-61	MANUAL, INSTRUCTION (ENGLISH) (UK, AUS)	

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

## CORRECTION

Correct your service manual as shown below.

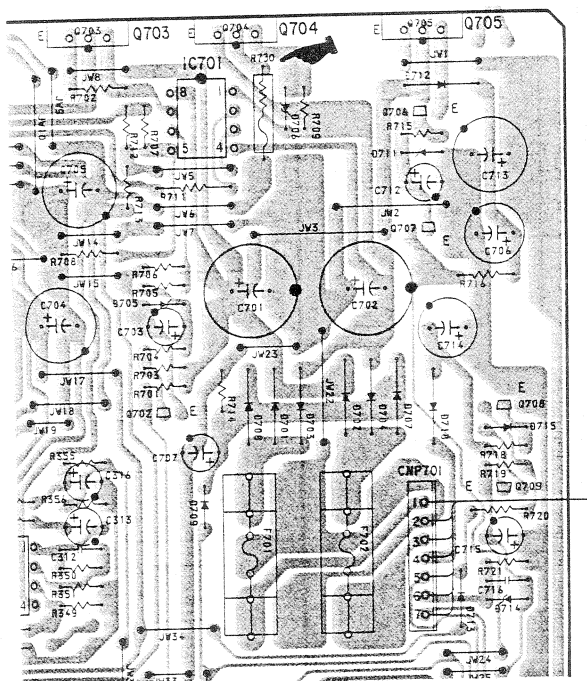
 : indicates corrected portion.

## SECTION 5 DIAGRAMS

## 5-2. PRINTED WIRING BOARD

(MAIN SECTION)

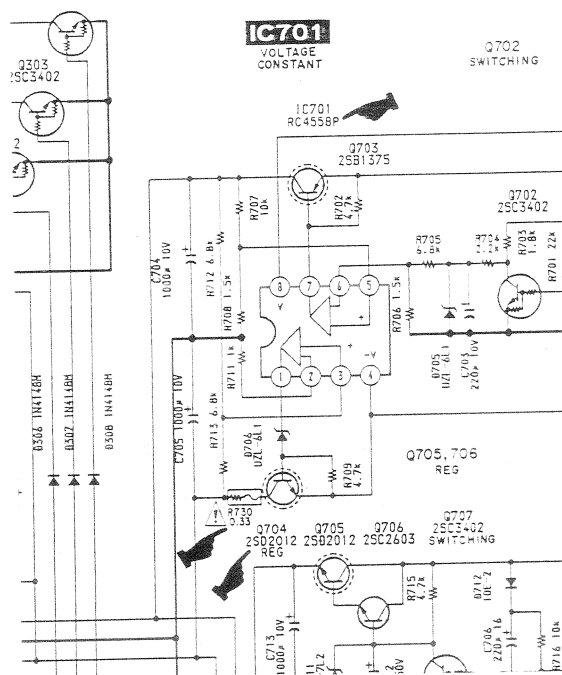
Page17. Address B-16



### 5-3. SCHEMATIC DIAGRAM



(MAIN SECTION)

Page 22. Address D-19

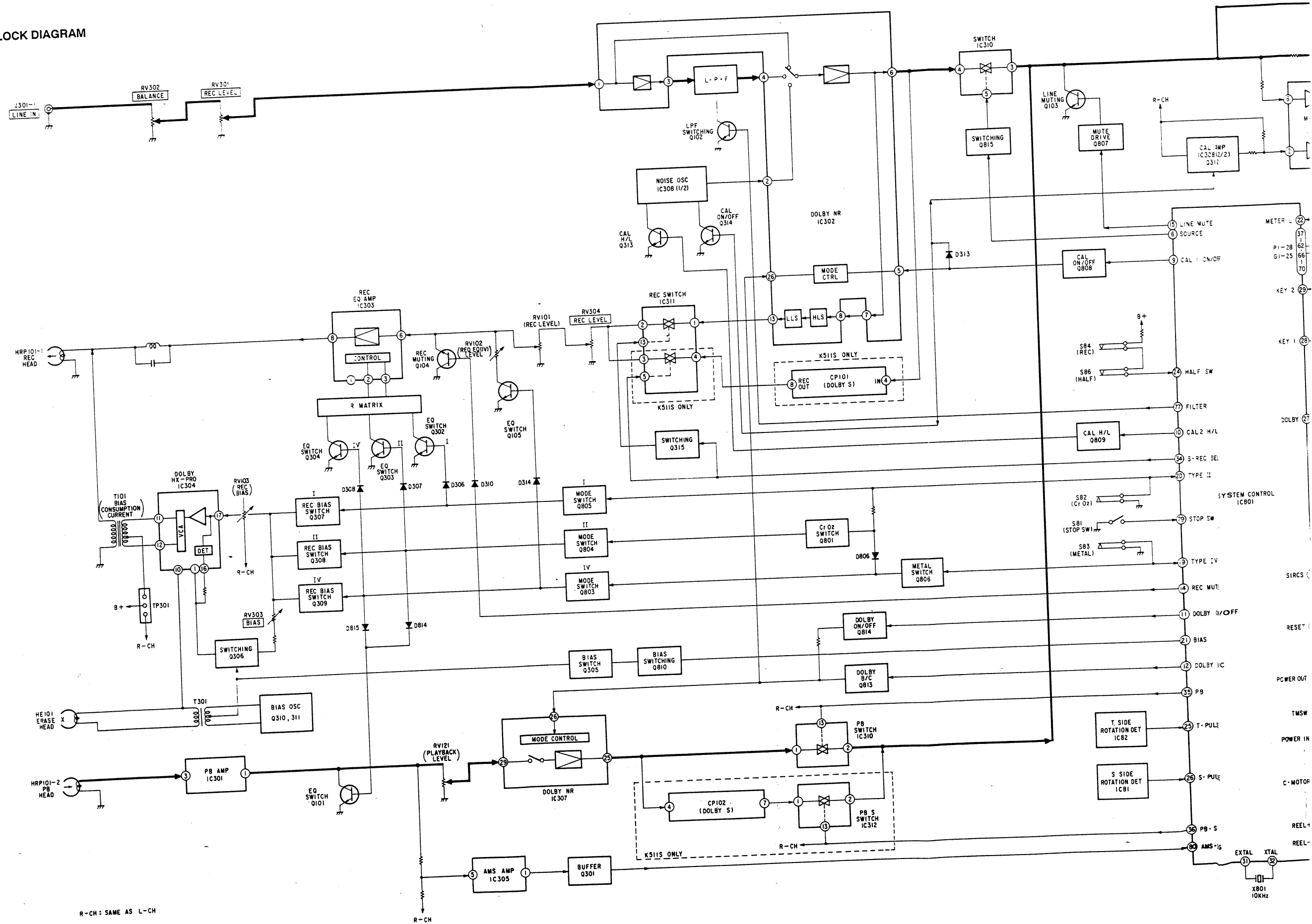


## SECTION 7 ELECTRICAL PARTS LIST

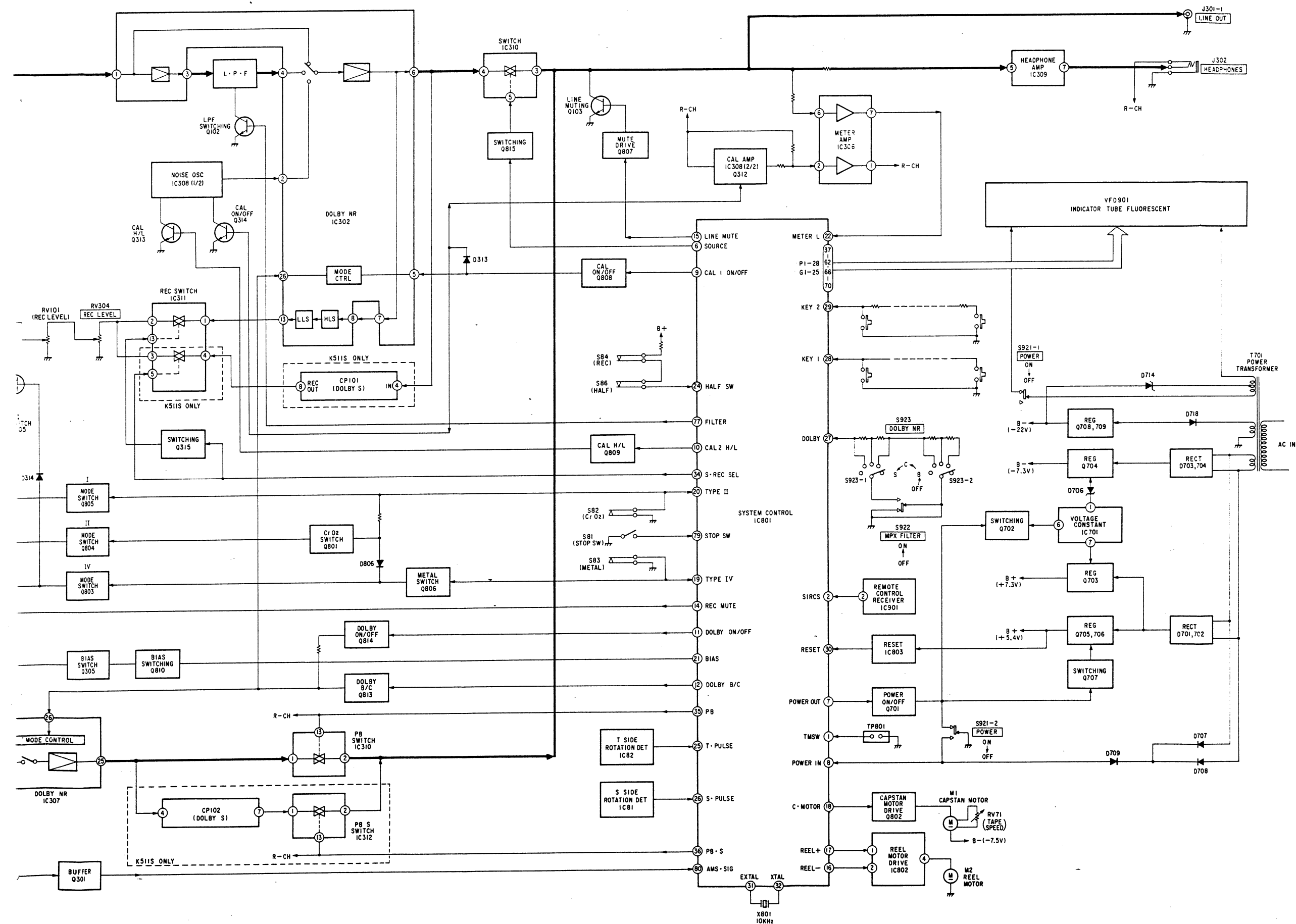
Page	INCORRECT				CORRECT			
	<u>Ref.No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>	<u>Ref.No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
36	IC701	8-759-634-51	IC M5218AP		IC701	8-759-145-58	IC $\mu$ PC4558C	
37	Q704	8-729-141-89	IC TRANSISTOR 2SD1585-K		Q704	8-729-209-15	IC TRANSISTOR 2SD2012	
39					$\Delta$ R730	1-219-137-11	FUSIBLE 0.33 10% 1/4W F	
41		3-756-691-61	MANUAL, INSTRUCTION (ENGLISH) (US, AUS)			3-756-691-61	MANUAL, INSTRUCTION (ENGLISH) (UK, AUS)	

The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

## BLOCK DIAGRAM



# TC-K411/K511S



# TC-K415/K515S

## SERVICE MANUAL

7248  
AEP Model  
UK Model  
TC-K415/K515S

Australian Model  
TC-K415

- TC-K415/K515S are almost same as the model TC-K411/K511S previously issued.  
Therefore, Refer to the TC-K411/K511S service manual for the information not contained in this service manual. 6790

### NOTE :

- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

### Difference Parts

	TC-K411/K511S	TC-K415/K515S
Tape Transport Mechanism Type	TCM-190VB11	TCM-190VB14

### TC-K415/K515S

Page	Ref.No	Part No.	Description	Page	Ref.No	Part No.	Description
28	* 4	A-2007-009-A	MAIN BOARD, COMPLETE (K511S/K515S : AEP,G)	29	68	X-3368-119-1	HOLDER (R) ASSY, CASSETTE (K515S)
	* 4	A-2007-226-A	MAIN BOARD, COMPLETE (K511S/K515S : UK)				
	* 4	A-2007-122-A	MAIN BOARD, COMPLETE (K415)	30	101	3-911-014-01	SPRING, TORSION (K415/K515S)
					114	X-3368-368-1	FLYWHEEL (FWD) ASSY (K415/K515S)
					M2	X-3368-855-1	MOTOR ASSY, CAPSTAN (K415/K515S)
	9	3-901-525-01	PANEL, BACK (K415 : UK)	31	151	X-3368-718-1	CHASSIS (ONE) ASSY, MECHANICAL (K415/K515S)
	9	3-901-525-11	PANEL, BACK (K415 : AEP,G)				
	9	3-901-525-21	PANEL, BACK (K415 : AUS)				
	9	3-911-452-01	PANEL, BACK (K515S : UK)				
	9	3-911-452-11	PANEL, BACK (K515S : AEP,G)				
	* 13	A-2006-954-A	DOLBY (S) BOARD, COMPLETE (K515S)				
	* CN1	1-537-473-11	TERMINAL (LEAD PIN)(K515S)				
29	56	X-3367-875-1	LID ASSY, CASSETTE (K415)				
	56	X-3368-044-1	LID ASSY, CASSETTE (K515S)				
	57	X-3367-874-1	PANEL ASSY, FRONT (K415)				
	57	X-3368-045-1	PANEL ASSY, FRONT (K515S)				
	63	A-2007-010-A	PANEL BOARD, COMPLETE (K515S)				
	63	A-2007-121-A	PANEL BOARD, COMPLETE (K415)				
	68	A-2004-357-A	HOLDER (R) ASSY, CASSETTE (K415)				

[ AUS : Australian model  
G : German model ]

### ACCESSORIES & PACKING MATERIALS

- 3-758-600-11 MANUAL, INSTRUCTION (K415/K515S : AEP)  
( ENGLISH,FRENCH,SPANISH,PORTUGUESE )
- 3-758-600-41 MANUAL, INSTRUCTION (K415/K515S : AEP)  
( GERMAN,DUTCH,SWEDISH,ITALIAN )
- 3-758-600-51 MANUAL, INSTRUCTION (K415/K515S : G)  
( GERMAN )
- 3-758-600-61 MANUAL, INSTRUCTION (K415/K515S : UK, AUS)  
( ENGLISH )
- \* 3-912-543-01 INDIVIDUAL CARTON (K415 : AUS)
- \* 3-912-543-11 INDIVIDUAL CARTON (K415 : AEP, UK, G)
- \* 3-913-835-11 INDIVIDUAL CARTON (K515S)

STEREO CASSETTE DECK  
**SONY**®

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Consumer A&V Products Company  
Home A&V Products Div.

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